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THE FUTURE OF MEDICAL PRACTICE.¹

By STANLEY BOYD,
Gnowangerup, Western Australia.

It has seemed to me that if I am to present to you adequately the convictions to which I have come regarding the future of medical practice, it will be necessary for me to relate the manner in which they arose, and, further, to show how recent occurrences in medical history have brought them to their present form.

When I entered general practice it could fairly be said that about 99% of my training had been for therapeutic work and the remainder, prophylaxis, had held the place of a pious but distant ideal, more or less hopeless of effective achievement.

¹Read at a meeting of the Western Australian Branch of the British Medical Association on July 19, 1939.

We knew we could treat cancer and tuberculosis with greater hope of success if the patients would present themselves at an earlier stage of their trouble; but for one reason or another most people would not come to us until they felt "seriously ill". For the rest of public health there was the medical officer of health, who had, we felt, a "cushy" job, with office hours, a salary and perhaps a pension; but he and his work seemed quite distinct from general practice. Very soon after I had started for myself, however, the whole profession was profoundly disturbed by the coming of the *National Health Insurance Act*, as it is called. It is a principle of government such as we have in England that private enterprise shall not be modified by law so long as the public is receiving a reasonably satisfactory service of the goods to supply which that enterprise exists. Yet, with no warning that reached the average general practitioner, we were presented with a revolution in our professional work which would materially affect our relations with

about two-fifths of the entire population. Too bewildered to ask what had been found wrong with our service in the past, and before we had had time to make any study of the underlying purposes of the bill, we found ourselves engaged in an organized resistance while our leaders bargained with authority as to how much we should be paid for our work under the new arrangement.

In the atmosphere of antagonism which fomented our resistance it was easy for us to lose sight of the reforms which the bill was supposed to bring about, and when the British Medical Association removed the embargo, and indeed advised us to accept the contract, most of us did so with reluctance and fear for the future. Some of this dissatisfaction persists to this day in a widespread feeling that panel practice is a rather inferior way of earning one's living, in spite of the immense economic boon which the act has proved itself to be to the doctor whose practice is mainly amongst employed workers.

Those of us who had studied the reasons why this interference with our professional liberties had been undertaken determined that its prophylactic purpose should not be entirely lost in our own practices. We had signed a contract which was devised to bring disease under our care at an earlier stage, since by the collection of their fees in small instalments and in advance, it was hoped to abolish for the workers the "fear of the doctor's bill". We had to shake off our disgruntled feelings if we were to deliver the goods we had contracted to supply. It was true that these intentions were not, as they should be in any future law, specifically mentioned in our contracts; but they were there by implication, and we felt in honour bound to respect the spirit of the new law rather than slavishly to adhere to its letter. Every person who came to register on our panel list was personally interviewed. He was informed of the new deal, and encouraged to see us at the earliest sign of trouble, or even to present himself for an occasional "once over" while feeling quite well. He was told that doctors had been trained to recognize the earlier signs of disease before the mischief had gone far enough to make him feel really ill; and that the purpose of the act was to prevent him from losing time by illness which could be prevented if taken early.

This law, although quite literally a rude awakening, made us realize that our governors believed it to be within the power and province of the general practitioner to take a greater part in the prevention of illness; but it did more than that. It enabled us to do so without pecuniary loss. It may be hard to believe, but after five years of work on these lines in my practice of over 2,000 insured persons the official figures of the National Health Insurance Committee proved me to have the lowest sickness incidence in the county borough. It cannot be argued that colliery and pottery workers are endowed with intelligence of a higher order than others of the industrial class, so we may presume that similar results could be won in almost any industrial area.

It will readily be seen that had such a wave of health come over my practice while remuneration was upon the conventional lines of payment for attendance upon illness, my income would have been woefully reduced. But under the contract, not only was my income maintained, but I had the time which I had formerly wasted upon the treatment of preventable illness, in which I was able to, and did, undertake research, recreation and other remunerative work.

During all the years which followed, the contrast between the contract type of practice and ordinary private practice was constantly being forced upon my attention. I could visit my "contract patient" as often as I thought he needed me, while in my private work, the more often did I see my client, the larger did there loom in his mind the very real bugbear of the bill he would have to face, in addition to the lowered income his illness would bring.

I set myself to exploit every prophylactic opportunity possible to me as a general practitioner. Aided by the growth of knowledge concerning immunity, and using the inoculations and dietary agencies by which it has been found possible to enhance resistance against the invasion of the body by disease, I tried to make myself a good doctor or teacher of health, as well as an efficient treater of illness, since we must necessarily be both.

Let me give you another actual example of the contrast to which I referred just now. In my early days I found quite a number of patients who every winter had to take to their beds for some considerable time suffering from a more or less acute bronchial or pulmonary infection. Some of these I succeeded in persuading to come to me in the fall of the year for a short course of preventive inoculations of a stock catarrh vaccine, and a fair proportion of these were enabled to go through the winter without their usual attack. Later on, the work of Besredka on oral vaccines made it possible for me to prescribe for these people, at their first interview, a course of vaccine treatment which they could administer to themselves without the aid of my hypodermic syringe.

This was naturally of immense benefit to these patients, and, so far as my panel patients were concerned, no loss of income was associated with this benefit; but my pay from a private patient was very materially reduced. Naturally I could not possibly charge him for the single consultation more than a small fraction of what I had formerly earned for the two or three weeks of visits, though the real benefit to him was incalculably greater. In exactly the same way, all the benefits of new measures of public health and dietetic and other prophylactic developments that affected my people could bring their harvest of better health to my "contract patients" without my feeling a qualm as to my future income; but the better the health of my private patients, the less did my earnings from them become. You may argue that there would be a great enhancement of prestige from such work;

but, curiously enough, this is by no means true. It is much more impressive and spectacular to drag back a patient from the very jaws of death after a severe illness than to prevent him from contracting it. Yet I think not one of my hearers will say that the public should not enjoy the full benefits of these achievements of scientific medicine because of that fact.

Having had to conduct side by side both types of practice has, to my dismay and disgust, forced me to become aware that I have a vested interest in the illness of my private patients, while with regard to my "contract patients" my interest is vested in their health.

One of my greatest difficulties in educating people to use me for the prevention rather than for the treatment of illness has been the deeply rooted conviction in their minds that they should never go to their doctor until they are "really ill". Some doctors feared that panel patients would crowd their surgeries with trivial disorders, because of the removal of the fear of the bill. In actual fact, the hardest thing I had to do was to persuade them that such was the soundest course they could follow. We are so bound up in the minds of people with the treatment of disease that we shall have to do some vigorous propaganda to break down this convention before we can do effective prophylactic work. It is our own preoccupation with therapeutic practice which has become reflected in this bad habit of our people; and we are allowing priceless opportunities for building the health of our nation to slip from our hands.

Two illustrations of this fact are to be seen in the service of the health of our children. Why is there the immense wastage of the prophylactic work being done by school medical officers, whose reports to parents are so often ignored? It is because they are unable or unwilling to pay their private doctor the fees he must charge if his services are engaged. Again, why is it that our infant clinics have been left to be organized by lay committees and run by nurses? Is the guidance of parents regarding the nutrition of their infants of such trivial importance that we can relinquish it with scarcely a murmur? We have become so busy with our patching up of the diseased that we have no time for the safeguarding of the fit.

The above illustrations show very clearly how wide is the dissociation in the public mind between the private doctor and the organization of health, and demonstrate very conclusively what a wrong place we hold in our community. Indeed, before very long the developments of scientific medicine and the growth of public knowledge of those developments will combine to make our attitude towards prophylaxis a glaring anachronism, unless we prove ourselves able to move with the times.

Permit me to quote from a lecture delivered recently at Cambridge by Sir Edward Mellanby, and reported in *The British Medical Journal* of May 13, 1939, under the title "Social Implications of Medical Science":

The medical scientist chafes at the delays which occur before many of his teachings are adopted by public authorities and private citizens. He knows, for example, that diphtheria could be cleared out of this country at once by the preventive inoculation of infants and children with diphtheria toxoid, as has happened in Hamilton, Ontario, where not one case of diphtheria in a population of 175,000 has been diagnosed during the last five years. An even better example . . . is to be seen in the field of nutrition, where every expert knows that the consumption of proper food from birth onwards would revolutionise the standards of health and physique.

Mellanby concluded his lecture with the remark that if the past was any criterion, the adoption of the teachings of medical science would greatly lag behind the new discoveries. The extent of this lag would depend on medical leadership, on doctors themselves, on public health authorities and on general intelligence.

I quote from this authority (for Dr. Mellanby is the secretary of the Medical Research Council of the Privy Council) to emphasize my contention that the day is rapidly passing in which we can consider surgery and therapeutics an adequate attack upon disease. But I go further and say that we cannot be expected to take a proper interest in the building of health so long as we are being paid for the treatment of illness.

Some may object that there is no immediate urgency for our adoption of this dual change from therapeutic to prophylactic work and from payment for treatment of illness to payment for the building of health. In reply to this objection there are two considerations I wish to lay before you. We appear, in Australia, to be within measurable distance of a repetition of the history of national health legislation in the Old Country. Before long we shall be faced, therefore, with an alternative: either to take part in a lay-designed scheme, chained to the chariot wheels of an act which is a product of political dodgery, or ourselves to organize a service which shall be the best we can devise and which has some chance of being in deed as well as in name a health insurance. It seems likely that in Tasmania and in New Zealand our colleagues may soon be faced with government proposals for the complete socialization of medical services, and none of us can say to what lengths the Federal Government may go, when next it tries to introduce its pensions bill, in persuading us to form a sugar coating of pseudo-health insurance as a *placebo* for the voters.

The only way we can avoid presenting the invidious and sordid spectacle of a profession bargaining about the price of its services with a government anxious to sell us as cheaply as possible to its constituents, will be to forestall them with a well-devised service of our own, and to intimate that we are resolved to serve the public on those terms and upon those terms only. We should then have matters of principle as well as of price to stand for and could hope to emerge with enhanced prestige, thus avoiding the very serious loss of "face" suffered by the profession in England over similar negotiations.

This might be called political urgency; but there are professional considerations just as cogent and

perhaps more appealing to us. We are key members of the nation in matters of health and physique. It is we who are responsible, and we alone who are capable of securing that the public shall receive the benefits which have been brought within their reach by the latest advances of scientific discovery. The more effectively we bring this knowledge to our people, the less illness will there be to treat, and we are therefore faced with a serious dilemma. If we leave well alone, determined to carry on as in the past, merely attacking disease when it has already arrived, enough illness will doubtless remain for us to earn a living under the conventional method of remuneration; but if we really apply all the knowledge available, we shall progressively destroy to a growingly greater degree the conditions we are now being paid to treat.

It is thus in the recent trend of discovery towards prophylaxis that I find one of the greatest reasons for urgency that we should make the changes I advocate. It may be asserted that I am looking too far ahead and that science has not advanced far enough for us to need to launch out in this way; that in fact for at least as long as we have to live we should be able to do without these reforms.

Let me quote you another passage from the report of Sir Edward Mellanby's lecture:

But while these great advances in diagnosis and treatment are occurring . . . another kind of knowledge is accumulating which, leading to the prevention of disease . . . is making hospitals, doctors and nurses less necessary. The prevention of disease is never regarded as of the same urgency as the taking up of curative methods, but however slow may be the adoption of methods of prevention, their action in the end is certain and enduring. In the near future the elimination and reduction of disease by prevention will entirely alter the character of hospital practice and greatly reduce the need for institutional treatment . . . Similarly there will be a change in the doctors' work.

So far I have tried to show that we owe it to our people and to ourselves to bring to them the fullest developments of prophylactic science; and further, that we can afford to do so only if we reorganize our services upon the basis of health building and finally dissociate ourselves from reward for attendance upon illness. I come now to the most important reason for my belief that as a profession we should change the strategy of our attack upon disease and make prophylaxis our first aim.

From before I became a student of medicine there has been one note in the music of life which has claimed my attention, rather as for some there appears to be an inescapable attraction in orchestral music for the vibrations of just one instrument. Probably it is because I dislike what are called "blue" notes in modern music that the discords with which life presented itself to me when I began to think for myself focused my mind particularly on the problems connected with human reproduction. Was there any way in which we could attack the population problem? The birth of individuals who were physically or mentally deformed or defective, and the immense sum of suffering in human life with which the function of procreation appeared

to be inescapably associated, challenged and pestered me. All is not well with us British nations. For years we have not been reproducing even at maintenance rates. We are paying the price in poor physique of the loss of over a million of our "A1" men during the Great War, which left the ranks of our parenthood impoverished both in numbers and in quality. Quite apart, however, from any search for causes, what part are we as doctors playing and what part could we play in aiding the progress of that evolution, under the natural law of which we must be among the fittest if we are to survive? Is there any application of Mendel's laws of inheritance known to the science of genetics which, in the present state of human society, could be used with success to enhance our fitness?

The answer is undoubtedly negative, for, being what we are, we humans are not sufficiently educated, nor have we evolved sufficiently to base our choice of mates upon their possession of this or that or those heritable characters or qualities. The day will dawn, no doubt, when such factors will play their part in forming the tastes and choices of mankind; but it has not dawned yet, and our solution of this problem must have no Utopian quality. It must apply to us as we are, or be worthless in any immediate sense. Need we worry? Can we not carry on as did our ancestors, trusting that we shall "muddle through" all right in the end?

I find an answer to these questions in a consideration of the pace being set by other nations which are seeking physical fitness. Read "Socialised Medicine in the Soviet Union", by Dr. Sigerist, professor of the history of medicine at Johns Hopkins University, and you will see that the Communist Party is not only organizing the medical service of the Socialist Republics with the central idea that it is the duty of the State to build health for every member, but also it is providing opportunities for the encouragement of health-giving sports in leisure hours and exploiting its machinery of propaganda to incite among its young people the determination to fit themselves to excel racially. Early in 1938 the Japanese nation brought a bill into the parliament to make compulsory the periodic medical examination of all nationals up to the age of forty years. These are nations which already enjoy a fecundity well above maintenance rates.

In the United States of America more than two hundred universities have responded to the students' demand in providing college courses in the preparation for parenthood, while to the best of my knowledge there are only two chairs of genetics among all the universities of the British Empire.

The political madness in Germany should not blind us to the fact that with their wonderful powers of organization the Germans are directing patriotic energy towards a high level of physical development and racial efficiency, however mistaken may be some of the methods which they are using.

Whether or not the pace set by other nations offers us a challenge to which we must respond or

go under, let us for a few moments try to bring into focus some of the things we do know regarding human reproduction. We know that there are certain poisons which have a racial action. Alcohol, lead, the venereal infections and certain radiations have a well-recognized selective influence upon the physical or mental welfare of progeny. When they have the opportunity these may affect our generative powers more or less profoundly and in this way injure the equipment with which children who escape their lethal effects will enter upon the struggle for existence.

There is, however, another fact, so axiomatic that it is often forgotten in this connexion—namely, that no part of our body can be injured without the whole of its corporate unity sharing in the results of that injury. In this way it is obviously true that the health of our generative tissues is inevitably bound up with the general health and nutrition of the rest of our body.

If we admit that we are not able to influence our race by ordering the choice of mates, there is one way, and one way only, in which we can affect racial health, and that is to secure the general health of all nubile persons; in other words, we must set ourselves to see that every potential parent is brought to reproductive age with tissues uninjured by disease, with their vital capacity and general physique in well-exercised development, and with vital chemistry as perfect as social conditions will permit. I should not think it beyond our province as the natural sponsors of racial health to see that social conditions are modified in any way necessary to bring this about. Our medical service must become aware of every individual who carries an hereditary taint, and we must seek powers for the sterilization of any who are mentally or otherwise medically unfit for parenthood.

These desiderata cannot be brought about unless we are in a position to examine periodically from birth every individual member of the nation. If you have followed my argument you will no doubt have already forecast my conclusion that our scheme must be nation-wide and national in every sense. It must offer a complete team service, and every doctor must be in close relationship with the central organization, so that the very latest discoveries may be applied in every part of the country. Though we cannot create life, we can by knowledge and industry so protect and nourish the bodies which are the vehicles of creative power that the germ and sperm which they offer for creation are healthy. We are all agreed that prenatal care is good, and all I argue is that our care in matters of reproduction should be pregenerative. I firmly believe that if we direct all we know upon protecting the quality of our reproductive material, our race will prove itself to possess virility enough for numerical increase. Our nations will then survive because they are fit to survive. Science has forged and is forging new and powerful weapons for us. With these it is within our power to make an entirely new place for ourselves in the national

life—a place full of honour and of hope for the future. Should we default, should we persist in offering less than the best available, we shall do more than bring dishonour on ourselves, for we shall inevitably involve our race in our failure.

I have tried, then, to show: (i) that prophylactic medicine is already within the realm of practical politics; (ii) that we cannot be expected to utilize it to the full unless we are paid for the health instead of for the illness of our people; (iii) that since society is like the human body, and the health of every member is essential to the health of all, our service must be nation-wide; and (iv) that the adoption of preventive medicine as the spearhead of our attack upon disease is not only incumbent upon us as trustees of national health, but is urgently required if we British nations are to retain our place as significant peoples of the world.

THE END-RESULTS OF THE SURGICAL TREATMENT OF THYREOTOXICOSIS.

By H. R. G. POATE, M.B., Ch.M., F.R.C.S.,

Director of Surgery, the Prince Henry Hospital, Sydney,

AND

N. R. WYNDHAM, M.D., M.S., F.R.C.S.,

Honorary Assistant Surgeon, the Royal Prince Alfred Hospital, Sydney.

THE removal of the thyroid gland, or a major part of it, for the condition variously described as toxic goitre, thyreotoxicosis, hyperthyroidism *et cetera*, appears unscientific, except, perhaps, for patients who have adenomatous masses in the gland. The surgeon who performs the operation, if he thinks at all, sighs for the day when such ruthlessness will be unnecessary, and the physician calls in the surgeon with regret. Despite any prejudices in this respect, however, these patients should not be denied such chances of health as surgery can offer. The conviction that surgical methods are still the best for this condition provides an excuse for this discussion of the results from operation. Although many such reports have appeared during the last twenty years, one still finds these patients undergoing prolonged periods of medical treatment and hears it remarked that the results of operation are over-rated.

The clinical material used consisted of 413 patients under the care of one of us (H.P.) at the Royal Prince Alfred Hospital in the years from 1925 to 1937 inclusive, concerning whom adequate information was available. No cases were included in which there was any doubt as to diagnosis. Some 40 cases were also investigated in which a possible doubt existed. The ultimate history of these patients is of interest and will be referred to later.

The most important thing to decide before treatment is commenced is the prospect for the patients, particularly in regard to their future activity and

capacity for earning their living. For this reason no mathematical index was used as a measure of cure. The patients were divided into three main groups: first, those who could do normal work and remain entirely free from symptoms; secondly, those who complained of mild symptoms during work; and, thirdly, those whose capacity for work was severely limited and who died from thyreotoxicosis immediately after operation or some years later. It is of less importance, if it were possible, to be able to surmise, for example, the future metabolic rate of the patients or any other one clinical or biochemical feature. The total condition of the patients is of paramount importance. Nevertheless, some individual features will be discussed from the point of view of prognosis. The results are set out in Table I.

TABLE I.

Results of Operation.	Number of Cases.	Percentage.
Complete freedom from symptoms ..	220	60.4
Mild symptoms	48	15.1
Unsatisfactory results	49	15.4
Total cases	317	

It can be seen that not all the patients investigated were available for the follow-up examination. Details were available in 76.7% of the cases examined from two to fourteen years after operation. Each group will be discussed separately.

Patients Completely Free of Symptoms.

An important lesson learnt from these patients was that treatment and careful attention should not cease on discharge from hospital. In the majority of cases a routine removal of at least seven-eighths of the thyroid gland was performed. The future history of the piece left behind is unpredictable, just as it is absolutely impossible to foretell accurately the histological appearance of the gland before its removal. We insist upon thyroid hyperplasia beyond normal physiological limits as a *sine qua non* of thyreotoxicosis; but the exact degree of this does not vary in proportion to the clinical or biochemical picture. The remaining portion must vary in exactly the same way, not only as regards hyperplasia, but also in the amount of lymphocytic infiltration and fibrosis. In a few cases the part left hypertrophies to such an extent that a second operation becomes necessary. On the other hand, the exact opposite may occur and the gland may lose its activity. It appears to us that in the majority of cases hypertrophy sufficient for normal physiological requirements is attained.

It is necessary therefore to watch and advise each patient carefully for about two years during the stage of readjustment, just as patients with *diabetes mellitus* need assistance and advice during the period of stabilization.

The two most important factors contributing to success are: (i) youth and (ii) illness of short

duration. The ultimate prognosis depends on the myocardium. For this reason the best results were obtained in those cases in which no colloid or nodular goitre had existed previously—that is, in the so-called primary thyreotoxicosis, the peak incidence of which, in our cases, occurred between the ages of twenty-five and thirty years. This does not mean that there is time to waste in this type of thyreotoxicosis. The optimum period for operation is between twelve and sixteen days after diagnosis, provided correct pre-operative treatment has been instituted. This is almost the universal opinion. When the disturbance occurs in a previously normal gland the onset is usually acute and the condition obvious; when the gland has already been the seat of disturbances of the hyperplasia—involution cycle, the illness is not nearly so often an acute one. The onset may be so insidious as to deceive patient, family and doctor as to the cause of the illness. Chronic or subacute thyreotoxicosis is therefore common in this type of case. The long history with the consequent myocardial damage when the patients are aged between thirty-five and fifty-five years results in a much poorer outlook. It is wellnigh useless to treat these patients by irradiation with X rays if cure is desired.

Patients with Mild Symptoms.

Patients with mild symptoms are capable of doing a normal day's work, but are not entirely devoid of symptoms. Their condition may be due to one of the following: residual thyreotoxicosis, hypothyroidism, hypoparathyroidism, diminished cardiac efficiency, neurasthenia, or causes not associated with the original illness.

With careful after-treatment many of the patients in this category will be included in the group of perfect cures. The condition of some of our patients is being improved now. They had lost touch with their family doctor, so that mildly toxic symptoms had persisted or hypothyroidism had commenced insidiously, and nothing had been done about it. When mild symptoms are present hypothyroidism is commoner than persistent thyreotoxicosis. One-third of these patients have this condition and are responding to thyroid administration. Two patients were successfully treated for hypoparathyroidism.

A much smaller number of patients in this category (5%) complain of minor degrees of dyspnoea and tachycardia on exertion, apparently due to myocardial damage, which, one might suppose, would become worse as the years passed. This, however, is by no means certain, since it is not commoner in the patients treated ten to fourteen years ago than in those whose operation was more recent. Thus it seems possible that, apart from delayed hypothyroidism, the future health of the patient will be decided soon after the operation. If myocardial insufficiency of thyreotoxic origin is to be a residual manifestation, it will be apparent within eight or ten weeks of operation rather than at some future date.

Neurasthenia has been included as a separate entity and not placed among those conditions which have had nothing to do with the thyreotoxicosis. Some nervousness and tachycardia, which are apparent only during emotional crises, may be due to the character and constitution of the patient and not to the persistence of thyreotoxic symptoms. They may have been present throughout the life of the patient; but it is preferable to err on the side of harsh judgement in considering results. Persistent nervousness is inconsistent with normal existence, and will therefore place the patient in the next category. Some 35% in this second group could be placed under the heading of neurasthenia.

The rest of these patients had never quite recovered normal life because of some other pathological condition. In two cases this was due to *diabetes mellitus*. Six patients were being treated for hypertension. Another patient had had four abdominal operations in six years, and was still recovering from this effort.

Unsatisfactory Results.

The proportion of unsatisfactory results has been exaggerated rather than minimized. Additional information was gained in quite a number of cases from the department of biochemistry at the Royal Prince Alfred Hospital. All the survivors of this group had been sent for further investigation, so that none were perfectly cured. This helped to make the prognosis a little gloomier.

Patients included in the category of unsatisfactory results may be further subdivided into three groups: (a) those who died within a few days of the operation (13 patients), (b) those who died after leaving hospital (6 patients), and (c) those still living who cannot live a normal life (30 patients).

The total mortality rate was 3.1%. A survey shows the rather extraordinary fact that this rate was lower in the first than in the second half of the period covered. The reason or reasons for this are not easy to determine. The number of patients who died were for the most part patients who had been treated for a long while before coming into hospital; this treatment usually included large doses of iodine. There is not sufficient evidence to decide whether a larger proportion of our patients than formerly have had prolonged medical treatment or not. The results may lead one to suspect that this is so. We do know that it has been rare, during the last three years, for an untreated patient with thyreotoxicosis to come under our care. Many physicians do not yet understand that it is doing the patient harm to give iodine in large doses over a long time. It is seldom necessary to give more than three drops of Lugol's solution after each meal, and then only while the patient is in bed and undergoing preparation for operation.

Statistics may be misleading; but the following figures are perhaps of interest, where the operative deaths are stated in terms of the anæsthetic employed (Table II).

TABLE II.
Operative Deaths and Types of Anæsthesia.

Anæsthesia.	Deaths.	Operations.	Percentage.
Local	3	25	12.0
Nitrous oxide	8	140	5.7
Ether	2	193	1.04
Ethylene.. .. .	0	59	—
	13	417	3.1

During the period under review cyclopropane had not been introduced, nor were the latest anæsthetic machines available with facilities for rebreathing *et cetera*. For the most part the anæsthetic agent employed depended rather on what was available than on the condition of the patient, with the exception of those operated on under local anæsthesia. In the latter cases the risk was considered very great from the outset. No mention has been made of basal anæsthesia. That question is being investigated at present, but does not appear to shed much light on the problem except that the use of the barbiturates is inadvisable. The low death rate in those cases in which ether anæsthesia was used seems to confirm the statement made in another paper that liver damage plays a minor part in deaths from thyreotoxicosis.

The essential requirement of the anæsthetic in any goitre operation is that it should be accompanied by an absence of straining and struggling and that the oxygen requirement of the individual patient should be carefully guarded. With nitrous oxide and oxygen anæsthesia, augmented by a basal sedative *per rectum*, the induction is not always calm even with a skilled anæsthetist, and manipulative procedures about the superior laryngeal nerves sometimes distress patient, anæsthetist and surgeon.

The difference between the mortality rates in public hospital cases and private cases is well known. The number of deaths among 155 patients treated at Gloucester House, the intermediate part of the Royal Prince Alfred Hospital, was three (1.9%).

The large public wards, where the calmness of the atmosphere is frequently disturbed by acutely ill patients, the excitement and noise of those recovering from anæsthetics, occasional deaths, examinations by students and the bustle of the visiting hour are not ideal for the nursing of these "peculiar people".

It would not be inappropriate here to stress the necessity for team work. The physician and surgeon should see all patients together from the very outset, before any treatment has been initiated. This cooperation should continue until long after operations. One must be prepared to visit patients with thyreotoxicosis on any day and to operate on them at the optimum time and not according to some time-table of public hospital routine.

The six patients who died since discharge from hospital included one young person who developed acute hypoparathyroidism some weeks after operation. This case led to a review of the operative

technique, which has since been modified with great improvement in results. The other five deaths were of middle-aged patients who subsequently suffered from cardiac failure. These five patients had never shown real benefit from the operation, having exhibited signs of cardiac insufficiency beforehand.

Thirty patients are still living, but cannot by any means live a normal life. There were three main causes: persistent hyperthyroidism, hypothyroidism and persistent cardiac insufficiency. In addition there were two instances of hypoparathyroidism and several patients without organic foundation for their symptoms.

The term "hypothyroidism" has been employed here to indicate the state of those patients who have a lowered metabolism and who gain in weight. No case of true myxœdema was found; it appears to take many years to develop. Two-thirds of these 30 patients were aged over forty years at the time of operation. Those suffering from hypothyroidism revealed by the follow-up will receive benefit from treatment.

From the foregoing discussion it appears that many patients with thyreotoxicosis over the age of forty years are prone to suffer from symptoms of some sort or another after operation.

Doubtful Cases.

Mention was made early in this paper of a group of some 40 cases in which the diagnosis was open to suspicion, and in which mild or doubtful symptoms were present in association with a goitre which was later seen to be devoid of abnormal hyperplasia. There were too few of these to be of value from the statistical point of view; but while the mortality rate was nil, the end-results were not so good as in proven cases of thyreotoxicosis. Persistence of nervous symptoms or hypothyroidism was common. It is unwise to add the symptoms of hypothyroidism to those of neurasthenia, the nervous instability of the menopause or autonomic imbalance, all of which are conditions very difficult at times to differentiate from a thyreotoxic state.

The History of Individual Phenomena.

Auricular Fibrillation.—There were 34 patients suffering from auricular fibrillation. The operative mortality rate was nil. The subsequent history was as follows: condition unchanged, 10; died since discharge from hospital, 1; normal cardiac rhythm, 16; no record, 7.

The chances of recovery depend on obvious factors: the length of duration of cardiac irregularity before operation and the presence of myocardial damage irrespective of thyreotoxicosis. These are of paramount importance in prognosis. Fibrillation depends more on the heart than on the thyroid gland. Thus, if a patient has a healthy heart, a thyroid crisis may be expected to cause pronounced tachycardia, but with a regular rhythm. The ages of the patients in which fibrillation occurred were: thirty-one to forty years, six patients; forty-one to fifty years, 17 patients; fifty-one to sixty years, 11 patients.

The low mortality rate in these cases is sufficient justification for approaching them with respect, but without undue trepidation. The fact that in 59% of such cases normal rhythm is restored is a point worthy of special note.

Irregularity of rhythm may not be inconsistent with an almost normal existence in the absence of valvular lesions, provided that the myocardium is moderately efficient and sufficiently nourished.

Exophthalmos.—It is impossible to foretell the subsequent condition of the eyes, nor can one determine what are the factors influencing it. Examination of 50 patients with pronounced pre-operative exophthalmos selected at random revealed the following facts: eyes normal, 23 patients; condition of the eyes improved, 16 patients; not improved, six patients; condition worse, two patients.

Basal Metabolic Rate.—It was impossible to estimate the basal metabolic rate of all patients investigated after operation, so that under this heading actual numbers of patients will not be quoted. As a rule the basal metabolic rate falls rapidly after operation, perhaps to less than $\pm 0\%$. The majority of those patients whose basal metabolic rate, for example, was $+10\%$ to $+15\%$ two weeks after operation, subsequently showed residual thyreotoxicosis. This estimation, carried out immediately prior to their discharge from hospital, is usually of prognostic significance.

The basal metabolic rate subsequently swings about a little before coming to a stationary figure; this may take twelve or eighteen months. Any figure for the basal metabolic rate between $+10\%$ and -15% may be consistent with normal health, constant weight and satisfactory existence, both physical and economic.

If signs and symptoms of thyreotoxicosis are divided into metabolic, nervous and cardio-vascular, it is usually possible to note a sequence in the improvement manifested by the patient. The metabolic disturbance reacts most easily to any form of treatment and especially so to deep X ray therapy. It is unfortunate that this is not widely recognized. How many times does one see conservative treatment persisted with merely because the basal metabolic rate is falling and the patient is getting fat! The restlessness and tachycardia may be entirely unaffected. Inadequate removal of the thyroid gland has precisely the same effect. Most of the patients in this series who suffer from residual thyreotoxicosis are plump. We do not make much use, therefore, of metabolism estimations in judging whether a patient is or is not fit for operation. It is better to wait until the patient can lie placidly in bed and until the pulse rate has been stabilized. After irradiation or prolonged iodine therapy this may never be achieved satisfactorily, and the only hope for the patient is courageous surgery at the most opportune moment, which can be judged only on the clinical condition.

Other Miscellaneous Features.—Tachycardia after subtotal thyroidectomy may be due to any of three

things: persistent thyrotoxicosis, other irrelevant cardiac disease and hypothyroidism. The discussion of "myxoedema heart" would be out of place here, even were we competent to speak about it. Two other conditions which occurred frequently in the hypothyroid patients were osteoarthritis and cholelithiasis. Rheumatism and gall-stones may be just as common in any other group of patients; but this is doubtful. There may be some connexion between the latter condition and the altered blood cholesterol content.

Conclusions.

1. In most cases of thyrotoxicosis (69.4%) surgery effects a perfect cure; in another 15.1% symptoms are mild.

2. Three common causes of imperfect health following operation are usually amenable to treatment: hyperthyroidism, hypothyroidism and hypoparathyroidism.

3. Prolonged administration of iodine before operation militates against success. A long history of abnormality and cardiac impairment also make the prognosis worse.

4. Close cooperation between physician and surgeon is of benefit to both and to the patient. A long period of observation is necessary after operation.

5. Approximately 60% of patients suffering from thyrotoxicosis who have auricular fibrillation may be restored to normal health.

6. The best anæsthetic agent for operations on the thyroid has probably not yet been determined.

7. It is not denied that there are other methods of treating thyrotoxicosis; but their relative merits need not be discussed here, since we have tried to put down the results of experience in our own cases in which surgical treatment has been used.

SOME RECENT VIEWS ON VARICOSE VEINS OF THE LOWER LIMB.

By C. H. WICKHAM LAWES, M.B., Ch.M. (Sydney),
F.R.C.S. (England),

Honorary Surgeon and Proctologist, New South Wales
Community Hospital; Honorary Clinical
Assistant, Sydney Hospital.

THE condition of varicose veins of the lower limbs has always been a cause of distress and disability to their unfortunate possessors and a cause of much worry to their medical attendants. The condition has long been recognized, and the treatments for its cure have been legion—eloquent testimony of their inadequacy. Doctors have grappled with the problem, and quacks and charlatans have grown rich by the use of "cures" that range from salves and coloured lights to tablets taken internally.

Operations have had their day, as have injections and bandages; but results have been unsatisfactory, and complications still remain resistant to treatment. It is the object of this article to deal with

the veins themselves, on the grounds that, no matter what complications are present (ulceration, dermatitis *et cetera*), the underlying problem of the defective circulation must be solved first. Recent investigations have clarified the bearing of anatomy and pathology on the subject, and these will be pointed out with some principles of treatment that naturally follow.

Summary of Earlier Treatments.

Up till the present no satisfactory method of treating the veins has been found.

Removal of obvious varices gave temporary relief; but it was a major operation; the scars were unsightly and the recurrence rate was high, and so the procedure rightly fell from favour.

Bandages and elastic stockings gave relief to the wearers; but they were uncomfortable and ugly and were not a cure. (They correspond to a truss in a case of hernia.)

Ligation of veins has had periods of popularity and disfavour for over 200 years. Results were never consistent; but this form of treatment is now enjoying a revival which is likely to be permanent in view of modern conceptions of the treatment of varicose veins.

In the last fifteen years or so the injection of sclerosing material has been a popular and, in some cases, successful form of treatment. Various solutions have been used and many techniques evolved; all have aimed at obtaining a firm thrombus and at reducing the risk of injection ulcer and general reactions. In its early days this method of treatment was regarded as the solution of the problem, and many good results were obtained; but, like other forms of treatment, it has not stood the test of time. In some cases the results were good and remained so. In other cases, however, there was no reaction to the injection, and often several sclerosing substances would be tried in an endeavour to promote thrombosis. In a third class of case the immediate results of injection were good—that is, firm thromboses in the vein and relief of symptoms were obtained. However, as time progressed, the thrombus became recanalized and varicosities reappeared, with a return of symptoms. This state of affairs is readily apparent when patients are followed up after some years of treatment and when a large number of patients are seen, as at a varicose vein clinic.

Investigations in the United States of America have revealed the following facts. According to Pratt,⁽¹⁾ if the Trendelenburg sign is positive, injections are of no use; 40% to 60% of patients return with the same symptoms. According to Howard,⁽²⁾ if the sapheno-femoral valve is defective, open veins can be demonstrated in 100% of cases, after 29 months, by the insertion of a needle.

In seeking a solution of the problem one must study the venous system of the leg as a whole, and not individual varicose portions of this system. This necessitates a knowledge of the anatomical arrangement of the veins of the limb and the arrangement of the valves in these veins.

Anatomical Arrangement of Veins.

There are three sets of veins in the lower limb: (a) superficial, (b) communicating, and (c) deep.

Superficial Veins.

The long saphenous is the main superficial vein. Commencing at the foot, it runs up the medial aspect of the leg and thigh to end in the femoral vein at the *fossa ovalis*. The point of termination is given by Edwards⁽³⁾ as 3.9 centimetres lateral and 1.7 centimetres below the pubic spine. Certain of the tributaries are of particular importance. Immediately below its termination the saphenous vein is joined by three small named tributaries, the superficial external pudendal, the superficial circumflex iliac, and the superficial inferior epigastric.

About the junction of the upper and middle thirds of the thigh are found the medial and lateral femoral cutaneous veins. Communications exist between these and other veins in the limb.

The short saphenous vein commences on the outer side of the foot and runs up the postero-lateral aspect of the limb, to end, in about 50% of cases, in the popliteal vein. In others it runs further up the limb, to end in the long saphenous vein in the thigh. This is termed a "high" short saphenous vein. In other cases it joins the internal saphenous vein below the knee and is termed a "low" short saphenous vein (Kosinski⁽⁴⁾).

Communicating Veins.

Communicating veins run between the superficial and deep veins, and are more numerous in the leg. Here they run to the *vena comites* of the three main arteries, while in the thigh they run principally to the femoral vein.

Deep Veins.

Deep veins accompany the arteries of the leg and thigh, and so are deeply placed in and surrounded by muscles.

Arrangements of Valves.

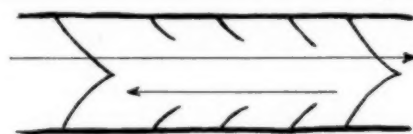
The veins of the lower limb are valved to aid the return of blood from below. The valves are found in the superficial and communicating veins. The most important valve is that guarding the sapheno-femoral junction, which prevents the femoral stream from entering the superficial system. The valves of the communicating system are so arranged as to allow the flow of blood from the superficial to the deep veins only.

Formation of Varices.

Valves.

In the normal limb the anatomical arrangement of veins and valves is such that the flow of blood is upward or towards the *fossa ovalis*. The veins fill from below, and as the blood passes upwards, some goes through the communicating veins into the deep veins, while the remainder flows directly into the deep system where the superficial vein ends—that is, at the sapheno-femoral junction in the case

of the long saphenous vein and into the popliteal vein in the case of the normal short saphenous vein. The flow of blood is further aided by the muscular contractions which at regular intervals cause the passage of some blood from the superficial to the deep systems via the communicating veins. Thus the pressure in the superficial system is reduced and the strain on the valves lessened. The blood flows in one direction and the pressure is kept low. The formation of varices is brought about by the reversal of the flow of blood and by a raising of pressure in the veins, and this follows deficiency of the valves. In the accompanying diagram (Figure 1) it will be seen that the defective



Early stage in formation of varicosity, showing defective valves and normal and retrograde flow of blood.

valves allow blood to flow back into the lower segment. This segment is therefore filling from below in the normal manner and also from above, so the pressure is raised and a local varicosity results. Sooner or later other valves become defective and the varicose area extends. Tributaries opening into this area feel the effects of the increased pressure, and they in their turn become distended. Such cases are not serious as a rule, and do not present a difficult problem in treatment.

The further development of the condition depends on the state of the sapheno-femoral valve. When this becomes defective, the whole picture is changed. Blood now enters the long saphenous vein at its upper end from the femoral veins, and there is a retrograde flow with a great increase of pressure. The whole superficial venous system is submitted to this pressure and the varicosities are more severe and more widespread. It is interesting to note that most of the distended veins of adolescents are of this type and are due to a congenital defect of this valve.

Finally, the valves of the communicating veins fail to act, and not only is the pressure-reducing function of these veins lost, but blood flows from deep to superficial systems here also, and so the pressure in the superficial system is still further raised. This class comprises the most severe types, namely, the huge disfiguring veins of legs and thigh so often seen, which have hitherto proved so resistant to treatment.

The role played by the valves in the production of varicosities will now be understood.

The Importance of the Anatomical Arrangements of Veins.

The importance of the anatomical arrangements of veins arises from the fact that communication between superficial veins is very free, and so pressure can readily be transmitted from one vein to another. An important example of this is the connexion

between the superficial external pudendal and the medial femoral cutaneous veins; the latter vein connects with more distal branches of the internal saphenous vein. In this way a secondary chain of varicosities is readily set up.

The short saphenous vein freely communicates with the long saphenous vein, and any varicosity in it will cause a reflux into the long saphenous system and so influence it, raising the pressure and recanalizing thrombi. This is especially so if the short saphenous vein is high in position, for it becomes badly varicose as a result of pressure from above and deficiency of valves in its own communications with deep veins. All these veins act as transmitters of high pressure from deep to superficial systems, and so complicate treatment.

The Reasons for Failure in Treatment.

It is now possible to understand the failure of former methods of treatment; it may be simply stated as a failure to attack the cause, and occurred mostly in the more severe cases, namely, those in which the sapheno-femoral valve and the valves of communicating veins are defective.

Excision of Varicosities.

The obviously varicose section of vein was excised and temporary relief from disfigurement was obtained. The cause, increased pressure in the system through the above-mentioned valve defects, was not removed, and soon other veins, branches and collaterals, were subjected to this pressure and in their turn became distended and varicose. The operation was therefore rightly considered a failure.

Injection Therapy.

Injection therapy is unsuccessful in these severe cases also, for the same failure to attack the cause. An injection causes a localized thrombosis, which blocks a vein, and a series of such injections blocks a whole length of vein. But the attack is directed to the wrong end of the venous network—that is, to the distal end—and though all obvious varices are obliterated, the high pressure is unaffected. In the case of excision this pressure distends fresh veins, and the same process occurs after injection. In the latter form of treatment, however, the chances of success are still further lessened by the recanalization of the thrombus, which occurs as a result of increased pressure.

Clinical Application of these Considerations.

While it is not proposed here to deal with the treatment in detail, attention will be drawn to the main principles which are based on the above facts of anatomy and pathology, and which constitute an attempt to eradicate the cause. Before any line of treatment can be decided on, it is now obvious that certain facts must be known. These are: (i) the anatomical arrangements of the veins of the limb, (ii) the condition of the sapheno-femoral valve, (iii) the condition of the valves of communicating veins, (iv) the condition of the valves of the short saphenous vein, and (v) the patency of the deep veins.

It should be pointed out at this stage that the observations in this article deal with uncomplicated cases of varicose veins—that is, with those in which no intraabdominal or other cause is present. All patients with varicose veins should, of course, be given a thorough physical examination.

1. It is necessary to ascertain which veins are affected. The internal saphenous vein is the commonest; but one of its branches or the short saphenous vein may be more varicose. Moreover, it is necessary to note the anastomoses between various branches, and of special importance is the behaviour of the short saphenous vein—that is, whether it is normal, high or low. These facts can usually be ascertained by inspection and palpation; but it is sometimes difficult, as the arrangement of veins is subject to much variation and, in addition, the varicosities tend to distort the appearance and mask the course of the veins. As an example the following case may be quoted.

The patient had a large varicose vein which ran up the back of the leg, and it appeared to end in the popliteal space. It was thought to be a varicose short saphenous vein, but was subsequently proved to be a long saphenous vein which was placed posteriorly. The sudden cessation of varicosities in the popliteal region gave the erroneous impression that the vein terminated there.

To empty and fill the veins by raising and lowering the limb will sometimes make their course more apparent.

2. Certain tests have been devised to ascertain the condition of valves.

The first and most important is the valve guarding the sapheno-femoral opening, and the well-known Trendelenburg test gives the required information. It is easy to perform; but it may be inconclusive in fat people or when obvious varices are discrete and scattered about the limb. Information as to the valves of the communicating veins is generally obtained while the Trendelenburg test is being carried out. Pressure is retained on the sapheno-femoral region when the patient stands up, and the rate of filling of the veins of the limb is noted. If the valves of communicating veins are defective, the varicosities fill immediately the patient becomes erect. If they are not defective the veins fill slowly from below in the normal manner. This test is not so satisfactory as the Trendelenburg test and its result may be difficult to interpret. Oschner⁽⁵⁾ uses the comparative tourniquet test. It seems that the following method, a modification of Oschner's, is clearer, and it gives information of all the valves in the limb. The ordinary Trendelenburg test is carried out first. If the result is positive, the following measures are applied. The limb is elevated and the veins are emptied. Three tourniquets are now applied, at the upper end of the thigh, just above the knee, and at the level of the tibial tuberosity. The patient now stands up. If the valves of communicating veins of the leg are defective, the veins of the leg fill at once; otherwise they slowly fill from below. Next, the lowest tourniquet is removed. A sudden increase in the blood in the veins

below indicates a defective short saphenous vein. Next, the tourniquet above the knee is removed. A sudden filling of the leg veins indicates defective valves in communicating veins of the thigh. Removal of the top tourniquet gives no further information if the Trendelenburg test has been carried out previously.

By varying the position of the tourniquets in these tests it is possible to obtain some information as to the site of the defective valves.

3. A reflux through the communicating veins indicates patency of the deep veins. A tourniquet is placed just above the knee, with the patient standing, tightly enough to block only the superficial veins. The patient now walks about. The veins below in the calf should empty, and pain should be absent, particularly the latter, if the deep veins are patent.

Principles of Treatment.

The problem then exists of how to approach a case of varicose veins with a view to treatment. The usual method is to give a series of injections of sclerosing material and to await results. This method is based on neither pathological nor anatomical grounds and is a failure in all but the milder cases. It is a tempting method to follow, as it is fairly simple to perform, and in many cases the immediate results are satisfactory. If, however, the veins do not thrombose or if recurrence takes place after an apparently successful series of injections, the problem of what is to be done will have to be faced—a problem that should have been solved at the beginning. This method of trial and error is most unsatisfactory. It is unscientific, it is apt to prove costly and wearisome to the patient, who is disheartened when recurrences appear, and it brings discredit on injection therapy, which is a valuable method of treatment when properly carried out in suitable cases. The correct approach is to ascertain first, by the above-mentioned tests and observations, the state of the venous system of the limb as a whole, and to plan carefully the treatment on the conditions found. In this injection and operation both play important parts.

In milder cases—that is, in those in which the Trendelenburg test gives a negative result, injection therapy is indicated and should be carried out.

In the more severe cases operation and injection will both be necessary. By operation is meant venous ligation and section, and not excision of large lengths of vein. This latter procedure is rarely necessary.

The fundamental principles of treatment must be to reduce the pressure in the superficial venous system and to prevent retrograde flow, and in such a corrected system to promote thrombosis. The Trendelenburg operation will in all cases be essential; but this alone is insufficient. If the aims of treatment are borne in mind it will be obvious that such conditions as defective valves in communicating veins, distended collaterals and anatomical variations must be effectively dealt with as well.

Operations, including the Trendelenburg, must be well planned and carefully performed, and injections also must be well placed, well timed and of adequate dosage. Distal injection at the time of operation is very effective. It is difficult to give hard and fast rules, for the correct line of treatment will be dictated by experience and by the conditions present. The success of treatment depends on a well-planned attack. There can be no doubt that it is the initial form of treatment that is of supreme importance, and if it is well conceived the major part of the problem can be solved at the very beginning.

The time spent and the trouble taken in preliminary investigations will prove well worth while when the results of treatment are considered. In cases that have proved resistant to other forms of treatment great improvement or even cure has been effected, and hope can now be given to those unfortunates who suffer from the most formidable of varicosities.

Varicosities and Pregnancy.

Varicose veins of pregnancy are sometimes a great disability, and the question of their treatment often occurs. If suffering is not too great, it is generally considered best to give palliative treatment only until the confinement is over. If this is done, a careful note of the condition of the veins should be made while they are prominent, as a guide to future treatment. Some of the less prominent veins may not be visible after delivery and so may be overlooked. They would, however, be a potential source of recurrence and should be included in the general plan of attack.

If treatment is necessary during pregnancy, it is carried out on the above lines and can be given up to about the seventh month. Quinine, of course, should not be used. Veins that are badly varicose during pregnancy and which subside considerably after delivery should not be neglected, for valvular damage is certain to have occurred and the condition will grow progressively worse, more particularly if there is a subsequent pregnancy. Varicosities of the vulva can be greatly reduced by high saphenous ligation also, but it must be accompanied by a careful dissection and ligation of the superficial branches, especially the superficial external pudendal.

Prognosis.

The recurrence rate after treatment by these methods cannot yet be assessed over a long period of years. Investigations have shown that in properly conducted cases it is very low and that the recurrences are of a simple nature and are easily dealt with. The possibility of recurrence after application of these principles of treatment is remote, as the causes have been removed.

Summary.

1. The anatomy and pathology of the veins of the lower limb and of their valves are discussed, and also the reasons for the failure of the early methods of treatment.

2. The clinical application of these facts and some tests to demonstrate the conditions present are described.

3. The principles of treatment are outlined: (i) injection therapy is suitable in mild cases only; (ii) operation and injection are necessary in more severe cases.

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THE SHELF OPERATION FOR CONGENITAL DISLOCATION OF THE HIP.¹

By E. F. WEST,
Adelaide.

THE idea of forming a bony shelf in cases of congenital dislocation of the hip with inadequacy of the acetabulum and so of preventing the upward excursion of the femoral head, was first suggested by König in 1891. The method has since been used and modified by a number of surgeons, such as Fairbank in England, and Dickson, Gill, Albee and others in America, and its sphere of usefulness in this condition is now fairly well defined.

It is recognized that the main stimulus to the growth towards normality of the pelvis and upper end of the femur in congenital dislocation of the hip is the replacement of the femoral head in the acetabulum, and that the earlier this is effected, the more perfect will be the final approach towards the normal. If the acetabulum does not develop normally, the upper lip will be deficient and redislocation of the hip will occur.

Apart from the ideal abduction treatment during the first twelve months of life, the following arbitrary rules for treatment, which are open to modification in individual cases, may be laid down in correlation with age periods.

1. Up to the age of three years, in both unilateral and bilateral cases, perform closed reduction followed by the usual immobilization in plaster for about nine months. At the end of that time examine the hip radiologically. If this examination shows that the upper lip of the acetabulum is developing, then the result will be satisfactory; but if no sign of development of the upper lip is taking place, proceed straight away to perform the shelf operation, or, as I prefer to term it, acetabulum reconstruction.

2. From three to five years the selection of treatment requires considerable judgement. If there is no sign of development of the upper acetabular lip, and instead a groove is present in this situation, proceed with the reconstruction operation straight away. This is my opinion; but I expect to hear disagreement with it. Then in unilateral cases, if the acetabulum shows fair development, with signs of formation of the upper lip, try closed reduction first. After the child has been immobilized for six months in a plaster cast, with the femoral head in position, if the upper lip is developing, the result will be satisfactory, but if not, perform a reconstruction operation. In bilateral cases I tend more towards performing the reconstruction operation straight away, because the tendency is for one hip to remain in place and the other to be redislocated owing to acetabular inadequacy, and valuable time is thus lost.

3. From five to eight years of age closed reduction becomes increasingly difficult without the exhibition of considerable force, which results in damage to the upper femoral epiphysis or in the later development of absorptive arthritis from excessive pressure of the femoral head against the acetabulum. I consider that it is better to pull the femur down so that its head is opposite the acetabulum and then to perform a reconstruction operation as described below. The femur is pulled down by weight extension or by what I believe is a better method, that of Anderson's principle of well-leg traction. In many cases it will be impossible to get the head down to the acetabular level, but as much descent as possible should be obtained before operation.

4. After eight years closed reduction is usually impossible, or at any rate it is undesirable to attempt it. If the femoral head is in the anterior position no treatment is required because function is satisfactory. The treatment of the head in the posterior position at this and later ages is outside the scope of this paper, except so far as the question of the formation of a shelf at the site of deformity is concerned. I am not in favour of this, because it does nothing to correct the length or lordosis and the results would not appear to make the procedure worth while.

The steps of the operation are, I hope, adequately shown in the cinematograph film which I shall show. One or two points may be added. As previously stated, I prefer to term the operation that of acetabular reconstruction, because one should aim at turning down the upper flattened-out portion of the acetabulum which is cartilage covered, to reconstruct as far as possible its normal hemispherical shape. I believe a good solid graft should be placed in the gap above, so as to form a solid buttress, as in the normal bone. This graft is best taken from the iliac crest and kept in place firmly with two bone pegs. The aim should be to draw the femoral head down to its correct level and keep it there, because otherwise the Trendelenburg gait will still be present, owing to inadequacy of the *gluteus medius* and *gluteus minimus*. This is often difficult. As previously stated, preliminary

¹ Read at the annual meeting of the Australian Orthopaedic Association, March, 1939.

traction is used; then at the operation traction is applied to the leg, whilst the structures around the hip joint are freed and the adherent capsule is stripped off the ilium. Opening of the hip joint is avoided if possible, but is sometimes necessary to define the upper limit of the true acetabulum. It may be necessary to open the capsule to clear away fibrous and fatty material which blocks the entry of the head; but I believe that there should be as little trauma to the actual joint as possible, and special care should be taken not to damage the cartilage of the head or acetabulum. In one of my cases, however, excessive care in not opening the capsule led to the shelf being made far too high up.

After the operation the patient is placed on a Jones's abduction frame with traction for six to eight weeks. This is most important, to prevent the head from pushing up and damaging the shelf.

The management of efficient traction on an abduction frame, however, requires considerable skill and experience in nursing, and it is my unhappy experience that this is very difficult to obtain in my city. My method now is to nurse these patients on the abduction frame with traction for the first ten days, and then to change to well-leg traction after the operative shock is over. After five to six weeks of this treatment they are replaced in an ordinary plaster spica for a further six weeks or, alternatively, they are left in the well-leg traction splint for this further period. Three months after the operation they are allowed to mobilize the limb in bed for four weeks and then to get up and walk. As previously stated, if the head remains at a higher level than normal, they still retain the Trendelenburg gait; but this, I think, tends to improve as growth proceeds. Sometimes, even with an apparently almost perfect anatomical result, the Trendelenburg gait may persist for one to two years until the glutei have properly recovered their function.

MORTON'S METATARSALGIA: NEURITIS OF THE FOURTH DIGITAL NERVE.¹

By L. O. BETTS,
Adelaide.

IN 1875 Thomas G. Morton described "a peculiar affection of the fourth metacarpo-phalangeal articulation". Six cases were fully reported. Isolated cases of the condition were described later. In 1897 Robert Jones reported 17 cases in a paper entitled "Plantar Neuralgia", in which the condition was discussed fully in all its aspects. Since then the subject appears to have received scant consideration. Some writers in their descriptions of it do not even separate it from other forms of anterior metatarsalgia. There have been varied explanations as to the cause.

Some years ago the first such patient seen in my orthopaedic practice showed such definite signs of neuritis that the nerve was explored. A pronounced neuroma of

the fourth plantar digital nerve, situated just at the site of its division into the branches for the third and fourth toes, was found. About one inch of the nerve was excised and the patient had no more trouble.

Since then I have performed this operation on a total of ten patients, and colleagues have performed it on nine others.

In all cases the enlargement of the nerve has been obvious; in two the neuroma was as large as a pea, with a well-defined bursal sac around it. Examination of a microscopic section revealed a great increase in the fibrous tissue element of the nerve. In all 19 cases the fourth nerve was involved.

One young woman so positively described her pain as extending into the fourth and fifth toes that the fifth nerve was first explored, but was found to be normal. The fourth was then explored and the usual neuroma was found.

From discussions with orthopaedic surgeons in various clinics overseas, it is evident that this condition is not very common, some men with large experience having seen very few cases. Although I have spent eighteen months in various English and American clinics, I cannot remember ever seeing a case there. My own cases, with the exception of one, have occurred in private practice. It is possible that in the out-patient department some cases might be missed; but the intensity of symptoms should surely force their attention on the surgeon sooner or later.

Tubby states that the condition is much more common in private than in hospital practice. In this series there were five women and five men. The following is a very adequate description of the condition by Lake.

Typically the neuralgia occurs unilaterally in women. In the incipient stage there is a burning or tingling sensation in the region of the fourth metatarsal head, noticed especially when walking, perhaps in one particular shoe. Gradually this develops into a most severe lancinating pain extending to the tips of the fourth and fifth toes, occasionally of the third or second toes. The pain occurs suddenly without warning and impels the patient to remove the shoes and rub and manipulate the toes, and especially to squeeze the metatarsals together. The attack leaves the foot painful and tender for a considerable period. Such attacks occur with increasing frequency and may be so severe as to cause fainting and sickness. Finally, the slightest provocation, such as a slightly uneven pavement, will initiate an attack and the patient may be afraid to venture out of doors. In long-standing cases evidence of a definite neuritis develops, there is constant pain, a bursting feeling of the forefoot, and sometimes numbness of the fourth and fifth toes, while cramps may extend back into the sole of the foot and even to the calf.

The pain in this series was, with one exception, in the third and fourth toes, mainly the latter. The preponderance in women is not so great as Lake states. Robert Jones's patients were ten women and seven men.

Investigation.

There are several points to be remembered in the investigation of such cases:

1. It requires close cross-examination to secure an adequate localization of the pain; frequently it is to a certain extent diffused. The same applies to the numbness and tingling after the attacks.

¹Read at the annual meeting of the Australian Orthopaedic Association, March, 1939.

2. A dulling of sensation on adjacent sides of the third and fourth toes was detected in all except one case.

3. Deep pressure over the site of the neuroma did not produce the acute pain, this area being only slightly tender.

4. Manipulation of the foot and toes in various positions produced negative results.

5. Vascular and trophic changes were occasionally noted.

6. The condition does not occur in the weak, flat foot, with poor circulation and callus under the heads of the middle metatarsals, but in a fairly well-shaped foot, frequently with slight clawing of the toes. This was observed by Robert Jones, who states: "Morton's disease appears to be associated with a foot with healthy nutrition."

Causation.

The actual mechanics that produce the pain have always been a source of discussion, and no adequate explanation is forthcoming in the literature. All are agreed that the pain occurs when the patient is wearing the shoe, with the foot in action, and that relief is obtained by removal of the shoe, compression of the foot and flexion of the toes. This points to stretching of the nerve rather than to compression as being the cause of the attacks.

The fourth nerve is formed by the internal plantar, with a communicating branch from the external plantar, each coming round from opposite sides of the belly of the *flexor brevis* and crossing this obliquely before they unite. Two to three centimetres distally the nerve divides, to pass to the adjacent sides of the third and fourth toes. The nerve is thicker than the other digital nerves, owing to its double origin and early division requiring more fibrous sheath, and this thicker part lies immediately on the transverse ligament, which is a very firm structure. This anatomical difference from the other digital nerves explains why the fourth nerve is subject to this neuritis. When the foot is in action the *flexor brevis* contracts, fixing the origin of the nerve, while dorsiflexion of the toes in walking stretches it around the unyielding transverse ligament. The neuritis probably arises in the first place from minor trauma, the head of the fourth metatarsal taking most of the weight on the outer side and being the part of the tread most exposed to such injuries. Once the nerve is swollen from neuritis a vicious circle is set up and the daily irritation is sufficient to keep it up (as in late ulnar neuritis). The viciousness of the circle is evidenced by the lack of any tendency to natural cure. On reading the details of Morton's and Robert Jones's cases one is struck by the long duration of the condition (up to 25 years), in spite of rest for prolonged periods. The origin by two roots anchoring the nerve at its base is probably the deciding factor. Each of the other digital nerves can slide easily longitudinally as the toes are dorsiflexed.

No explanation is forthcoming as to why the attacks usually occur only with the shoe on the

foot. This is probably explained by the fact that patients do not walk far in a slipper, and the increased blood supply of active use causes slight engorgement of the swollen nerve and vessels around it. Pressure from the plantar aspect does not appear to be a factor, as on exploration of the nerve it is found to be buried well down beneath at least half an inch of soft fibro-fatty pad. In several cases there appeared to be a little more fibrous tissue than normal in what might be called the false sheath of the nerve—that is, the surrounding fibro-fatty tissue immediately adjacent to it. This, of course, would be produced by tissue reaction to the enlarged nerve.

Treatment.

Robert Jones has made the following statement:

Nothing short of an operation is satisfactory. By this I do not mean that on no occasion can an advanced case be relieved by mechanical means. On the contrary, it can and often is. But operative measures are so safe and simple and other measures so prolonged and troublesome that most patients do not hesitate which course to accept.

With this I heartily concur.

Jones considered (a) excision of the metatarsal head, (b) excision of the joint, (c) amputation of the metatarsal head and toe, as the only radical and efficient operation. He also mentioned (i) the insertion of a heated needle into the nerve, (ii) the hypodermic injection of carbolic acid, and (iii) partial excision of the digital plantar nerve. To these three last measures he objected, because of the scar on the tread of the foot. In practice Jones's objection has proved to be without foundation. A longitudinal incision between the heads of the third and fourth metatarsals heals well, and the scar almost disappears in a few months. The denervation of the toes gives no trouble to the patient. In performing the neurectomy I remove about one inch of the nerve, cutting it back proximally as far as possible to prevent any chance of a painful neuroma under the tread. In no case have I failed to find a neuroma.

The operation of neurectomy is not put forward as anything new, although when I first performed it I did not know that it had been used in these cases.

Conclusions.

1. Morton's metatarsalgia is a neuritis of the fourth digital nerve, with a pronounced neuroma in all cases.

2. It is intractable to all mechanical treatment.

3. Operation by neurectomy is simple, rapidly effects a permanent cure, and is not so mutilating as removal of the head of the fourth metatarsal.

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Reviews.

PRIMITIVE TUBERCULOSIS.

THE theory of "primitive tuberculosis" was the subject of "Current Comment" in this journal on December 9, 1939, when we had under review an article by S. Lyle Cummins, who was one of the first exponents of the subject nearly thirty years ago. We now have a very readable and well-made little book by the same author, which is worthy and destined to become a classical work on the tuberculosis of the less sophisticated peoples.¹ We are shown a similarity in the tuberculosis of wild men and of wild animals; in these it is never endemic. When Senegalese were brought to France in 1914 their fate was like that of monkeys brought from the jungle to the Cairo zoo to be spat at by the fellahs; large numbers of them went down within the next year or so with a severe form of tuberculosis. They had no allergy, no immunity and probably little enough immunizability; in their tribes, because they had never encountered tuberculosis, there must have been unrestricted multiplication of persons without the power to defend themselves against the germs. When similar tribesmen were brought to the Rand mines ten years later from villages which had now had occasional contact with tuberculosis, large numbers of them went down with the same severe form of tuberculosis much more quickly; they still had little enough immunity, but most of them were now highly allergic and thus greatly handicapped if called upon to deal with massive infection, perhaps under very artificial conditions. The American negroes of African descent have now after a dozen generations in their new country an incidence rate of tuberculosis and a mortality from it no greater than were those of the white population a generation or so ago, though infection still produces a high degree of allergy in them and they acquire resistance much less readily than do whites. The author's survey of an extensive literature on tuberculosis in many races of mankind leads him to a succinct discussion of the various theories as to the nature, significance and relationship of allergy and immunity in tuberculosis, and he considers views that have been expressed on whether the desensitized animal possesses more resistance to superinfection than one still sensitive. To this question a definitive answer is not yet forthcoming. But if the ability to survive tuberculous infection and to acquire resistance to superinfection is hereditary, as it appears to be, then the available human soil for the tubercle bacillus must become more and more stony.

HYDROPHTHALMIA OR CONGENITAL GLAUCOMA.

DR. J. RINGLAND ANDERSON, of Melbourne, has written a book on hydrophthalia or congenital glaucoma.² The disease has in the past usually been known as buphthalmos, but, as the author points out, the only claim for this name is one of picturesqueness, and as it is unsatisfactory on scientific grounds, he prefers hydrophthalia.

The disease is admittedly a rare one. We read in the chapter entitled "The Final Picture" that "few diseases lead to such visual loss, discomfort and disfigurement. A visit to a blind asylum and a search of its records afford ample evidence of this statement. With head hung, watery eyes and every effort made to avoid the

light the victim seeks refuge in the dark. Relief may follow only bilateral enucleation." Any investigation which may improve the lot of those suffering from this distressing cause of blindness is more than justified.

The aetiology and differential diagnosis are fully discussed in the opening chapters. In a disease in which congenital malformation plays such an important part, it is in research in embryology and comparative anatomy that the truth about its obscure nature is most likely to be learnt. To this end a large portion of the book is devoted to the embryology, comparative anatomy and pathology of the involved tissues. The treatment of these subjects is indeed exhaustive and well illustrated, and leads up to a chapter on theories of origin.

To the practising ophthalmologist the chapter devoted to treatment is perhaps the most interesting. Therein medical treatment is considered and every operative procedure which has been suggested from time to time is statistically reviewed, with, however, the ultimate conclusion that the results are at present very unpromising.

Finally, prognosis is considered. After each chapter a very complete list of references is appended.

This book must for years to come remain the authority on all that has been and is known at present concerning hydrophthalia. Dr. Ringland Anderson is to be congratulated on the efficient way in which he has carried out what must have been laborious research and investigation, and on the completion of his labour in this notable book of reference.

PHYSIOLOGY.

It is difficult to know for whom the "Outline of Physiology", by Professor Amberson and Associate-Professor Smith, both of the University of Maryland, is really intended.³ The authors make it clear in the preface that this book has not been written as a compendious text-book of physiology. On the other hand, it is too advanced for non-medical readers, except perhaps for those who are taking animal physiology in the earlier years of a science course. Nevertheless the matter is so up to date and well balanced and the exposition so lucid that medical students and even teachers of physiology will read the book with pleasure and profit. The historical approach to physiological discoveries is well done, though the authors are obviously not strong in their classics, for "molecule", which is Latin, is put down as Greek, and the same language is credited with the unfortunate hybrids "monovalent" and "divalent". Another excellent feature is the clear presentation of modern physical views on atomic structure and X ray diffraction, which should be welcome to those readers whose study in natural philosophy dates back to a time when such subjects were little known or untaught. A considerable number of the illustrations are original and can be warmly commended. The page is large, the paper good and the printing clear.

It is a pity that authors so obviously scholarly and also experienced in teaching should let their patriotism colour their exposition. As the book is primarily intended for Americans we do not mind a reference to the increasing number of skunks killed by motor cars on the road; but the student who learns that *The American Journal of Physiology* is now in its 125th volume, whereas the *Journal of Physiology* emanating from Cambridge is only in its 94th volume, may get a wrong idea of the vigour and great tradition of the science in Britain. Two diagrams which we owe to Sir Joseph Barcroft are ascribed to Best and Taylor, whilst in the discussion on kidney function the hypothesis of Cushny is not mentioned. This vice is not nearly so pronounced and objectionable as it is in many American text-books; but it is present and detracts from the scientific merit of a really good book.

¹"Primitive Tuberculosis", by S. L. Cummins, C.B., C.M.G., LL.D., M.D.; 1939. London: John Bale Medical Publications Limited. Demy 8vo, pp. 221, with illustrations. Price: 10s. 6d. net.

²"Hydrophthalia or Congenital Glaucoma: Its Causes, Treatment and Outlook", by J. Ringland Anderson, M.C., M.D., B.S., F.R.C.S., F.R.A.C.S., D.O.M.S., with a foreword by Sir J. H. Parsons, C.B.E., D.Sc., F.R.C.S., F.R.S.; 1939. Cambridge: The University Press (for the British Journal of Ophthalmology). Royal 8vo, pp. 397, with illustrations. Price: 25s. net.

³"Outline of Physiology", by W. R. Amberson, Ph.D., and D. C. Smith, Ph.D.; 1939. Baltimore: The Williams and Wilkins Company; London: Baillière, Tindall and Cox. Super royal 8vo, pp. 420, with 177 illustrations. Price: 22s. net.

The Medical Journal of Australia

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All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: Initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

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THE NEW MEDICAL ACT IN QUEENSLAND.

A NEW act "to consolidate and amend the law relating to medical practitioners and the control of the practice of medicine and for other purposes" was assented to on November 9, 1939, and was gazetted in the *Queensland Government Gazette*, Number 112, of November 14, 1939. This act, cited as *The Medical Act of 1939*, contains some admirable provisions and some which do not arouse our enthusiasm. The members of the legislature have tried to ensure that only medical graduates who are properly trained in an academic sense and who have had a reasonable amount of practical experience shall be allowed to practise in Queensland. They have also tried *inter alia* to prevent the public from being overcharged in the matter of medical fees and to put down the practice of abortion. In large measure they are bound to be successful; but some of the provisions are likely to be difficult for young graduates of the University of Queensland, to embarrass hospital authorities and to be unjust to practitioners registered under the act.

The qualifications for registration are set out in detail, and the first subsection of the clause dealing with it is as follows:

Subject to this Act, every person shall be entitled to be registered as a medical practitioner under this Act who makes application to the Board in the prescribed form and pays the prescribed registration fee, and who proves to the satisfaction of the Board that he has attained the age of twenty-one years and is of good fame and character, and that—

- (a) He is the holder of a degree (obtained after due examination) in medicine or surgery of any university in the Commonwealth of Australia or the Dominion of New Zealand, which is legally authorized to grant such a degree; or
- (b) He is registered or possesses a qualification entitling him to be registered under the Medical Acts of the Parliament of Great Britain and Northern Ireland or any Act amending or substituted for those Acts or any of them—

and who further proves to the satisfaction of the Board that, subsequent to obtaining such qualification so relied upon by him—

- (c) He has served for a period or periods amounting in the aggregate to twelve months as a resident medical officer and has obtained the prescribed experience in medicine, surgery, and obstetrics, in one or more of the hospitals hereinafter specified, namely, any hospital to which "*The Hospitals Act of 1936*" applies, or any hospital in Queensland approved by the Governor in Council or, in the case of a hospital outside Queensland, a hospital specifically approved by the Governor in Council; and in any event produces a certificate or certificates as prescribed showing that such service or services was or were performed and completed to the satisfaction of the competent authority or authorities controlling the hospital or hospitals concerned; or
- (d) He is duly entitled to practise and practised as a medical practitioner for at least three years in a State or country outside Queensland.

When a medical practitioner would be entitled to registration after he had served for a period as a resident medical officer in a hospital, the Governor-in-Council may direct the governing authority of any hospital within the State to appoint such a person as a resident medical officer. Queensland is not the only State in the Commonwealth which has sought to make it compulsory for graduates in medicine to serve for a period as hospital resident medical officers before they become entitled to registration. This provision, which in effect prolongs the medical course by one year, has the approval of many Australian authorities, and if it does nothing else will certainly appeal to the lay

mind as being wise. The provision, however, may possibly affect reciprocity with the General Medical Council of Great Britain. It makes the position less favourable for graduates from Great Britain. The question has been considered by the General Medical Council and we understand that certain correspondence has taken place between that body and the medical boards in some of the Australian States. On account of the present war, consideration by the General Medical Council has, according to recent reports from overseas, been deferred. This aspect of the matter is thus in a certain sense *sub judice*, and in the circumstances we should prefer not to comment further upon it. The adoption of this extra year to be devoted to residence in hospital means, of course, that no Queensland graduate will be able to seek a higher degree or diploma outside the State until he has achieved registration at home. A graduate also would be subjected to delay if he wished to serve his period of residentship outside the State; the hospital chosen by him would have to be specially approved by the Governor-in-Council of Queensland. That a certificate of competence in hospital service has to be supplied by a hospital board is not pleasing. It seems to give a hospital board, possibly composed of lay persons, a veto over the decisions of the university. It is true that the resident medical officer may appeal to the Medical Board if he thinks that his certificate has been unjustly withheld, and the Board may direct the hospital authority to issue the required certificate. The onus of appeal, however, should not be on a person who has already received the approval of his university, but on the lay Board. Among the other provisions for registration are those which allow registration for a limited period to certain persons engaged in research or in official duties on behalf of the Commonwealth.

Provisions which meet with our entire approval are those dealing with the registration of specialists. The Governor-in-Council has power to determine what branches of medicine shall be deemed to be specialties, and in order to be registered as a specialist a medical practitioner will have to comply

with certain provisions. The relevant clause is as follows:

A medical practitioner who makes application in the prescribed form for registration as a specialist and pays the prescribed fee, and who—

- (a) If such application is made on or before the thirty-first day of December, one thousand nine hundred and forty-one, shall, to the satisfaction of the Board and in virtue of all the circumstances, prove that he has gained special skill in a particular specialty by adequate experience in that specialty in practice for a period of not less than five years, or in a hospital approved by the Board for a period of time of not less than three years, or partly in practice and partly in a hospital approved as aforesaid for a period of time of not less than four years; or
- (b) If such application is made on or after the first day of January, one thousand nine hundred and forty-two, in addition to proving that he possesses a qualification prescribed by paragraph (a) of this section, also produces to the Board the diploma in the specialty (if any such diploma is generally granted or recognized in such specialty) to which his application relates of a university or other institution approved by the Board,

shall be entitled to be registered as a specialist in accordance with his application.

This is the first occasion on which an Australian State has attempted to control specialist practice, and it is to be hoped that the attempt will be successful. If specialist practice is to be controlled, the control should be rigid. In the past claims for the recognition of skill in special branches of medical practice have sometimes been groundless. While it may be admitted that the possession of a special degree or diploma, even coupled with some years spent in the performance of special procedures, does not necessarily denote the possession of special skill, the provisions of this act are a praiseworthy attempt to confine specialist claims to those who are properly qualified. The provisions are fair in that they do not close the ranks of specialism to a general practitioner; there is no clause that would limit the performance of special procedures to registered specialists. Specially to be commended is the implied view that possession of a special diploma is not of itself evidence of special skill in practice.

The rights and privileges of medical practitioners are defined. No unregistered medical practitioner may hold any appointment as a physician, surgeon

or other medical officer in any passenger or other vessel leaving any port and registered in Queensland or in any public or private hospital or other such institution, or as a medical inspector, medical officer of health or health officer. A qualifying clause is, of course, inserted to permit of the appointment as resident medical officers of hospitals of graduates serving in such capacity for purposes of registration. In this part of the act some of the provisions are likely to be embarrassing to hospital administrators. Thus no person other than a registered practitioner is allowed to sign a certificate of death; and no certificate required by the act is valid unless it is signed by a registered practitioner. In most hospitals resident medical officers do these things. It would appear also that difficulty may arise in the acceptance of evidence in a court of law from an unregistered resident medical officer.

The control and discipline of the act are in the hands of a Medical Assessment Tribunal. This Tribunal will be constituted by a judge of the Supreme Court of Queensland. The judge will be able to exercise all the powers, jurisdiction and authority of a judge of the Supreme Court, but will not have power to award costs. Two medical practitioners will sit with the judge constituting the Tribunal, as assessors. One of them will be nominated by the Minister to represent the Government, and the other will be nominated by the association or associations recognized by the Minister as representative of medical practitioners. The duty of the medical assessors will be "to advise the judge as to what, in their opinion, is the proper determination of such questions of fact as may be referred to them by him for an expression of opinion". Already a peculiar position has arisen. It is provided that the Medical Board may refer to the Tribunal any question as to the conduct or qualifications of any medical practitioner which in its opinion requires investigation in the public interest. In these circumstances such reference is to be deemed to be a charge made by the Board. It is also stated that when the Board charges a medical practitioner before the Tribunal it shall have conduct of the charge as prosecutor. The Director-

General of Health and Medical Services, who is Chairman of the Medical Board, has been appointed as assessor to the Tribunal, representing the Government. He will thus be at one and the same time Chairman of the prosecuting body and assessor for purposes already enumerated. It would require the pen of a W. S. Gilbert to do justice to this situation. The Director-General has our sympathy in the anomalous position in which he finds himself.

If the Tribunal finds any medical practitioner guilty of any charge laid against him under this act it may adopt one of three courses: it may order his name to be erased from the register; it may order his registration to be suspended for a specified period; or it may inflict as a pecuniary penalty a sum of money not exceeding one hundred pounds. A convicted practitioner has a right of appeal to the Full Court of the Supreme Court.

A whole section is concerned with the meaning of the term "misconduct in a professional respect". There are twelve subsections. These subsections deal with such matters as addiction to intoxicating liquor or a deleterious drug, the misuse of a medical title or description, the issue of false certificates, "covering" an unqualified person, contravention of any law dealing with dangerous drugs, advertisement, the enabling of any person not registered under the relevant act to attend women in childbirth. The last four subsections are so important that they are reproduced in full. These subsections state that a medical practitioner shall be guilty of misconduct in a professional respect who:

- (ix.) Upon obtaining information which indicates an attempted or completed crime or any illegal operation fails to call in another medical practitioner for consultation if reasonably available and to advise the Director-General by the most speedy method of correspondence, whether the same be by telephone, telegraph, or letter, of such indication of attempted or completed crime or illegal operation; or
- (x.) When called to treat any wound from a cutting instrument or other weapon (not being a firearm) which he is not satisfied was accidentally incurred, or to treat any wound from a bullet, fails to call in another medical practitioner, if reasonably available for consultation, and to advise the Director-General by the most speedy method of correspondence, whether the same be by telephone, telegraph, or letter; or

- (xi.) When called to resuscitate or otherwise treat any person suffering from partial strangulation, asphyxiation, or trauma caused by heat, which he is not satisfied was accidentally incurred, or to resuscitate any person suffering from trauma caused by electricity, fails to advise the Director-General by the most speedy method of correspondence, whether the same be by telephone, telegraph, or letter; or
- (xii.) Whether in his capacity as a general practitioner or as a specialist omits through negligence to do something which any reasonable man guided by those considerations which ordinarily regulate the conduct of human affairs would do, or does something which a reasonable man claiming such general or special qualifications would not do, or shows in any other way the absence of such reasonable skill and attention as shall have endangered the health of the patient or prolonged his illness or period of convalescence.

There is, in English courts of law, no privilege regarding communications made by a patient to his medical attendant. It is recognized that a medical practitioner is under an obligation to preserve the secrets of his patient, and it is common practice to make statements about them in a court of law only under protest and at the express direction of a judge. This act requires a practitioner to go much further and to notify the health authority that such a procedure as an illegal operation is being attempted or has been completed. This idea is not new. Mr. Justice Hawkins is quoted by Saundby in his standard work on medical ethics as having referred to the "general rule existing in the medical profession" that whenever they saw that a crime had been committed or was about to be committed they were to notify the public prosecutor. Mr. Justice Hawkins said that this rule did not meet with his approbation and he hoped that it would not meet with the approbation of anybody else. He thought it would be "monstrous cruelty" for a medical practitioner called in for the purpose of attending a woman after abortion and giving her medical advice, to notify the public prosecutor that she was suffering from the effects of a criminal abortion. He admitted that there might be cases in which it was the obvious duty of the medical man to speak, as in murder. He protested against the rule he had mentioned supposedly being applicable when a doctor had reason

to suspect a crime. Medical men are not policemen. It must not be forgotten that once the general public becomes aware that all abortions are reported to a health authority, women suffering from an abortion, whether natural or criminally produced, will be inclined to go without necessary medical attention for fear that their misfortune or their misdemeanour will be known and made the subject of an inquiry. The Government of Queensland is evidently prepared to take this risk in the hope that the sum total of abortions will be reduced. On the whole, the insistence on a consultation with another medical practitioner, as set out in the subsections quoted above, is to be commended. Unfortunately, it would be possible for a medical abortionist to call in consultation another practitioner who was wont to indulge in the same reprehensible practice. The aforementioned considerations notwithstanding, the duty of Queensland practitioners is now clear; but they are faced with difficulties. A medical practitioner obeying the provisions of the act may supply information which he believes to be correct but which is in fact false. Such information would be defamatory. The complicated legal argument that centres round this question need not be pursued in this place. It must suffice to state that the Minister for Health of Queensland has declared that all information supplied in conformity with the provisions of the act will be confidential; but it is clear, notwithstanding, that subsequent legal proceedings may reveal the fact that the medical practitioner has supplied the information. Once this fact is known he will be exposed to the risk of an action, though clearly the risk will be small. This risk may be associated with false evidence given against him on oath. All risk of this kind could be obviated if a proviso was included in the act that all reports made by medical practitioners under the act should be privileged and protected by action from any law. Such a clause could surely be introduced in such a way that it would apply only to a medical practitioner acting in the discharge of his duty under the provisions of the act. No practitioners who abused the privileges of the act and used them for

an improper purpose should receive any consideration, and certainly no protection.

Part of the act deals with prohibited practices. The first section of this part is as follows:

No person other than a medical practitioner shall advertise or hold himself out as being, or in any manner pretend to be or possess the status of, or take or use or by inference adopt (either alone or in conjunction with any other title, word or letter) the name, title, or letters of a physician, doctor of medicine, licentiate in medicine or surgery, master in surgery, bachelor of medicine or surgery, doctor, surgeon, medical or qualified or registered practitioner, apothecary, accoucheur, or take or use or by inference adopt any other medical or surgical name, title, or letters implying, or that may be construed to imply, that he is a medical practitioner, or that he is qualified to practise medicine.

The position of university graduates serving as resident medical officers prior to registration is somewhat anomalous. The University of Queensland has declared them to be Bachelors of Medicine and Bachelors of Surgery, and this act declares that they must not pretend to be either. The same statement applies to the higher degrees in medicine and surgery, for the University of Queensland does not require that graduates should be registered before they qualify either as Doctors of Medicine or Masters of Surgery. Something ought to be done to remove this anomaly.

The last part of the act to which we shall draw attention is that concerning medical fees. The act confers upon a registered medical practitioner the right to recover his fees in a court of law. It also provides that:

The party chargeable may within one month after service upon him of an account apply in the prescribed manner to the Board to review the same upon the ground that the amount thereof is excessive or unreasonable, and, in the event of his so doing, shall serve notice of his application upon the medical practitioner concerned either personally or by post.

This dual arrangement is quite fair. For some time past the Queensland Branch of the British Medical Association has had a Medical Fees Tribunal (see THE MEDICAL JOURNAL OF AUSTRALIA, June 24, 1939, page 939). The provisions of this part of the act are therefore not a novelty to Branch members. All reasonable medical practitioners will agree that excessive fees should not be charged, in the first place because they are unfair to the public,

and in the second place because they bring the profession into disrepute. It is provided in this part of the act that:

The medical practitioner whose account has been reviewed by the Board or the person to be charged with such account may, if dissatisfied with the review, appeal therefrom to the Tribunal.

This provision is reasonable, but it would probably be found satisfactory if a sum of money was stated below which no appeal would lie.

In the foregoing an attempt has been made to set out the important features of the Queensland act. The Queensland Government is to be congratulated on its desire to put medical practice on a sound basis. Many of the provisions, as we have shown, are excellent; but we think that before long it will be found necessary to frame an amending act to correct some of the disabilities and difficulties that must arise.

Current Comment.

THE PAINS OF LABOUR.

THE paucity of investigations into the nature of labour pains is strange when one considers the vast mass of literature dealing with their relief with which the medical world has been flooded since the days of Sir James Simpson. Certainly many of these methods are efficacious, but the answer has not yet been found to the fundamental question: "What is the exact mechanism of the pains of labour?" Until we have that answer, methods of relieving these pains must remain largely empirical. Investigations of pain arising in other viscera have considerably advanced our knowledge of visceral pain in general, so that we can now strike a balance between the more or less opposing views of Mackenzie and Head, who believed that all visceral pain was "referred" to some somatic structure, and of Hurst and Poulton, who emphasized the existence of true direct visceral pain. Both types of visceral pain undoubtedly exist—for example, the "referred" pain of *angina pectoris* and the "direct" pain of an over-distended segment of intestine. There is still no definite knowledge as to whether uterine pain is a direct or a referred phenomenon, although most modern writers assume that it is a true visceral sensation, felt in the uterus itself. However, some workers still adhere to the belief in referred uterine pain. For example, Theobald claimed to have abolished the pain of labour by anesthetizing superficial structures, just as anginal and other types of referred pain have been removed by local anæ-

thesia of the parts to which the pain is referred. Further investigation of this question is badly needed, for Theobald's observations, if confirmed, are obviously of the greatest practical and theoretical importance.

The whole subject of the nature of labour pains has recently been discussed by Chassar Moir,¹ well known for his discovery of ergometrine, the active principle of ergot extracts. Moir points out that even the basic problem of the afferent pathways from the uterus is not yet solved, although some light is being shed on it by advances in surgical technique. For instance, presacral neurectomy undoubtedly relieves and sometimes abolishes intractable dysmenorrhœa, from which it is reasonable to infer that most of the uterine afferents pass through this "nerve" on their way to the central nervous system. So far there have been very few observations of the course of labour in patients who have previously undergone presacral neurectomy. Moir mentions three such cases; all occurred in *primiparæ* who had very short uneventful labours, but he could find no reference to the severity and distribution of the pain experienced. Another case has just been reported by T. Vibert Pearce,² in which labour was very short, with a practically painless first stage. The scarcity of such reports prevents any definite conclusions from being drawn; but the observations certainly suggest that a large proportion of the pain impulses from the uterus pass through the presacral "nerve". The part played by the sacral autonomic in relaying uterine sensory impulses remains obscure, although the tendency nowadays is to minimize its importance. However, the striking relief from pain which follows low spinal or caudal anaesthesia during labour demands an explanation and indicates that some sensory impulses reach the central nervous system through the sacral nerves.

In an effort to trace the immediate cause of the pain of labour, Moir examined the sensibility of the uterus to various stimuli. He found that deep-seated suprapubic pain was produced by passing a sound through the internal os in non-pregnant women or by manually stretching the cervix during labour. The uterus was insensitive to other forms of stimuli, including strong faradic currents. The stimulus of muscle tension seemed to be essential for the production of pain. Moir also recorded graphically the relation between uterine contractions and the onset and duration of the associated pains by placing a small balloon in the uterus during the first stage and instructing the patient to operate a signal while pain was being experienced. The tracings so obtained showed, first, that there is a lag in the pain sensation, which appears fifteen seconds or so after the onset of contraction and does not subside until the uterus has completely relaxed, and secondly, that the intensity of pain is not directly related to the

strength of a contraction. These findings led the author to believe that the pain of labour is not directly due to muscle contraction, but is caused by a stretching of the lower uterine segment. It is well known that uterine contraction is akin to peristalsis, in that the process begins at the tubal insertions and spreads as a contraction wave towards the cervix. Moir has found, by double recording, that there is a delay of about seventeen seconds between the contraction of the upper and lower poles of the uterus; this delay, he states, would account for the observed lag in the onset of pain.

There is another possible cause of the pain, namely, ischaemia of the uterine muscle during the height of a contraction. This would readily explain the delayed onset and subsidence of the pain, which, according to this theory, appears with the accumulation of certain metabolic products and remains until these have been swilled away by the restoration of blood flow. Moir in 1934 suggested ischaemia as the cause of pain in spasmodic dysmenorrhœa, because in one case he observed that pain appeared when the intrauterine pressure attained the level of the systolic blood pressure. He dismisses this as the cause of labour pains, because he doubts whether the intrauterine pressure during labour ever exceeds the systolic blood pressure. However, this argument carries little weight, because the critical pressure required to stop the blood flow in an organ is the capillary pressure. Although this has not been measured in the uterus, it is reasonable to assume that it is considerably lower than the arterial blood pressure. The question must remain open for the present, pending further investigation, but it is an attractive explanation of the origin of labour pains, bringing them into line with other muscular pains, such as occur in *angina pectoris* and intermittent claudication. The lack of correspondence between the severity of pain felt and the strength of a contraction is difficult to explain by either theory and should be checked by further experiment before being accepted as an established fact. Since the method used by Moir depends on the patient's cooperation during a time of stress and suffering, results obtained by it may well be misleading if accepted without reserve. The impression gained by most clinicians is that the degree of suffering varies rather closely with the strength of a contraction.

Undoubtedly the whole subject teems with unanswered questions, and if Moir's work does no more than stimulate further research, it will serve a good purpose. Much more investigation is required before the problem can be solved.

ISLET-CELL TUMOUR.

THE practice of making frequent estimations of the blood sugar content has necessarily become more general since the advent of modern methods in the treatment of *diabetes mellitus*. As a result

¹ *The Journal of Obstetrics and Gynaecology of the British Empire*, June, 1939.

² *The British Medical Journal*, January, 1940.

the condition of hypoglycemia is recognized oftener than formerly. It is now known to be by no means rare. Of the various causes, over-activity of the insulin-producing cells of the islets of Langerhans is perhaps the most interesting. This is the essential factor in the production of the condition known as hyperinsulinism. It is sometimes caused by actual tumours of the islets. Removal of the tumours has resulted in cure. Four cases of islet-cell tumour and one of hyperplasia of the islets of Langerhans have recently been recorded by Walter R. Campbell, Roscoe R. Graham and William L. Robinson.¹

They point out that Wilder, with others, in 1927, was the first to establish the existence of the disease hyperinsulinism. Wilder's patient suffered from weakness, faintness, paræsthesia, trembling and sweating, which were controlled by the administration of carbohydrate. Operation revealed a malignant tumour of the islet cells of the pancreas and metastases in the liver. Insulin was found in one of the metastases. Since then a number of cases have been reported from various parts of the world.

As the disease progresses, the patient, having discovered that he can obtain relief from his symptoms by taking food, becomes more and more obese. In time serious effects on various other body tissues become apparent. The most readily observable perhaps is the deterioration of the nervous system. The patient becomes irritable and emotionally unstable, tends to vulgarity, and becomes careless in speech, dress and deportment.

It might be of interest at this point to quote the main features of the report of Campbell, Graham and Robinson's first case.

A female, aged 52, complained of exhaustion in September, 1922, then feeling ill she threw herself on the bed and gradually became comatose. She was restless, tossed about, grimaced and failed to comprehend questions. Sweating and vomiting occurred. Consciousness returned in an hour but the feeling of exhaustion persisted. Similar attacks were experienced 6 times within the next 2 years and from then on they increased in duration, frequency and severity. After it was noted that food would abort an attack, frequent lunches were adopted as regular treatment but later they seemed to lose their effect. Attacks became more frequent and the comatose state more prolonged; convulsions, incontinence and temporary hemiplegia sometimes occurred.

... During an attack blood sugars were at severe hypoglycemic levels. A blood sugar tolerance curve was of the diabetic type, but excessive amounts of sugar usually provoked hypoglycemia. Epinephrin caused hyperglycemia. . . . operation was advised and one of us removed an islet cell tumour from the body of the pancreas.

Islet-cell tumours were removed from three other patients. In one instance it was found necessary to remove the spleen and a large portion of the pancreas. This patient died on the third day after operation. In the fifth case no tumour was found. A piece of the pancreas weighing 34 grammes was excised, a mass of pancreatic tissue one centimetre

by two (presumably anterior surface measurements) being left. The four patients who recovered from the operation were apparently cured of their hypoglycemia. In one case recovery was dramatic in its suddenness. The removal of these islet-cell tumours is not easy. The tumours are small and may be surrounded by normal pancreatic tissue; therefore they are hard to find. The pancreas must be mobilized so that every part of it can be palpated between finger and thumb. Obesity, which is usually a feature of the disease, increases the surgical difficulties.

Graham, Campbell and Robinson point out that extract of the anterior lobe of the hypophysis has been shown in experiments on laboratory animals to have a depressing effect on the insulin-producing mechanism. But they suggest that unless this substance can be proved to have a specific effect on tumour cells it should not be used in hyperinsulinism. "since there is little likelihood of affecting the tumor cells without at the same time destroying the normal insulin-producing units and thus producing diabetes plus erratic insulin release from the tumour cells". An attractive suggestion is that hypophyseal extracts might be used for the treatment of patients suffering from hyperplasia of the islet cells, operation being reserved for those suffering from actual tumours. But, in the first place, there is at present no means of differentiating clinically between the two conditions, and, secondly, "hypophyseal extracts operate on an all-or-none principle, insufficiently injured cells reverting to normal in a few days".

The insulin content of an islet-cell tumour at the time of operation is much greater than that of normal pancreatic tissue; but there is no way of ascertaining whether this is its usual insulin content. Furthermore, the actual insulin content at any one time cannot be taken as a measure of the tumour's activity in insulin production or the pouring of active insulin into the circulation. There are many additional factors that may play a part in disturbances of sugar metabolism. Normally the production of insulin is probably dependent on the amount and composition of the diet, the activity of other hormones *et cetera*. The "delicate balance which is normally maintained between these various factors to permit of a normal concentration of sugar in the blood and tissues" is of the greatest importance. When islet-cell tumours are present this balance is upset. It is probable that the cells of these tumours are not under the same measure of control as normal islet cells; therefore insulin may be produced in excess and released continuously or erratically in far greater amounts than are required. The authors conclude by suggesting that careful examination of patients suffering from mental deterioration might reveal a far higher incidence of islet-cell tumours than is apparent from an inspection of existing statistics.

The paper is brief and admirably presented. It is so rich in good material and thoughtful comment that, despite its brevity, it seems to leave little that requires to be said on the subject.

¹The American Journal of the Medical Sciences, October, 1939.

Abstracts from Current Medical Literature.

MEDICINE.

The Treatment of Chronic Hypoparathyroidism.

I. A. ANDERSON AND A. LYALL (*The Quarterly Journal of Medicine*, July, 1939) state that there are two stages in the management of hypoparathyroidism following thyroidectomy. In the acute stage relief is readily obtained by the intravenous injection of calcium salts with or without the simultaneous intramuscular injection of parathyroid extract; but this treatment is unsuitable when the deficiency is persistent. Then, the authors believe, one of the most important points in treatment is the limitation of the intake of phosphorus in the diet, the optimal amount being 0.5 to 0.65 gramme daily. The small amount of calcium present in such a diet must be supplemented by about 14 grammes of calcium lactate. A suitable low-calcium, low-phosphorus diet is as follows. Breakfast: orange juice, 60 grammes; white bread, 30 grammes; bacon, 45 grammes; butter from ration and tea with cream from ration. Forenoon: orange juice, 60 grammes. Luncheon: lean meat, 60 grammes; potato, 90 grammes; apple, 90 grammes; and white bread, 15 grammes. Tea: white fish, 60 grammes; white bread, 45 grammes; and tea with cream from ration. Supper: white bread, 30 grammes; and banana, 90 grammes. Daily rations: butter, 45 grammes; cream, 45 grammes; sugar, 50 grammes; and syrup, 30 grammes. The minimal amount of vitamin D necessary to raise the serum calcium to a normal level in parathyroid deficiency lies between 30,000 and 45,000 units daily. The higher dose is effective even when the phosphorus intake is not reduced.

Chronic Obliterative Vascular Disease.

L. S. MCKITTRICK (*The Journal of the American Medical Association*, September 23, 1939) discusses the diagnosis and management of chronic obliterative vascular disease from a study of the records of 853 patients who had been admitted to hospital suffering from either *thrombo-angiitis obliterans*, peripheral arteriosclerosis, or arteriosclerotic gangrene associated with *diabetes mellitus*. The symptoms of progressive occlusion of the arterial supply to an extremity are similar regardless of the cause of the obliteration. Intermittent claudication is one of the earliest and most common symptoms, brought on by walking and relieved by rest. Paresthesias, such as coldness, numbness or burning, are often present. The fundamental principles of treatment adopted by the author in all forms of chronic obliterative vascular disease are rest in bed

with the involved foot in such a position that it is not blanched, avoidance of local heat, control of pain, careful hygiene of the feet with daily massage with hydrous wool fat, avoidance of pressure upon the heels, supportive treatment with a diet rich in iron and vitamins, Allen's modification of Buerger's postural exercises, and the application of intermittent venous hyperemia. By these means many patients in the earlier stages of the disease may avoid or postpone the onset of gangrene for many years. In the more advanced cases of *thrombo-angiitis obliterans* the author advises the prohibition of smoking, and in selected cases nerve block or ganglionectomy. When conservative treatment, after thorough trial, has failed to arrest the disease amputation must be performed.

Prevention of Untoward Symptoms after Air Encephalography.

M. SCOTT (*The Journal of the American Medical Association*, September 16, 1939) has found in more than a hundred cases that the subcutaneous injection of one-fiftieth of a grain or 1.3 milligrammes of atropine sulphate about fifteen minutes before air encephalography is started will decrease considerably such symptoms as sweating, nausea, vomiting and headache, both during and after the procedure.

Pathogenic Staphylococci.

E. H. GILLESPIE, E. A. DEVENISH AND S. T. COWAN (*The Lancet*, October 21, 1939) have described investigations into the incidence of pathogenic staphylococci in the nose and on the skin. Some surgeons are nasal and skin carriers of *Staphylococcus aureus*. Nasal and skin swabs were made from healthy students. Swabs were taken from both nostrils and by rubbing a swab twenty times on the back of the wrist. Colonies of golden and white staphylococci were examined as regards morphology, fermentation of mannitol and production of pigment, coagulase and α -haemolysin. Those monomorphic Gram-positive cocci producing α -haemolysin and human plasma coagulase were labelled potentially pathogenic. Four hundred strains of Gram-positive cocci were isolated; 310 of these were staphylococci. Those labelled pathogenic all produced golden pigment. Sixty-nine out of 159 nasal swabs were positive, and 31 positive swabbings were obtained from the skin. The skin carriers mainly suffered from heavily infected noses; 18 were carrying the same serological type in the nose as on the skin. Thirty-nine persons gave a history of chronic nasal discharge, catarrh or sinusitis; 25 of these were nasal carriers of *Staphylococcus pyogenes*. Ten students from each group were retested two to four months later, with similar results, a high proportion of the students being nasal carriers with the same strain of organism as before. Ten students also washed for eight

minutes as for an operation, rinsed the hands in spirit and put on dry sterile rubber gloves. After sweating in the hands had been induced by immersion in hot water, the gloves were removed and their contents were pressed onto Fildes's agar plates and incubated. Five of those tested yielded pathogenic staphylococci.

The Use of Adrenaline in Oil for the Symptomatic Treatment of Asthma.

E. L. KEENEY (*The American Journal of the Medical Sciences*, December, 1939) has administered injections of a suspension of powdered adrenaline in peanut oil (so prepared that each cubic centimetre of oil contains two milligrammes of adrenaline) in the symptomatic treatment of chronic and paroxysmal bronchial asthma. The adrenaline is slowly absorbed and the effect of the injection is not manifest for some fifteen or thirty minutes, but it is usually more prolonged than the effect of injections of adrenaline hydrochloride. In the treatment of severe paroxysms of asthma gratifying results have followed the combined use of adrenaline hydrochloride and adrenaline in oil.

"Dilantin" in Epilepsy.

O. P. KIMBALL AND T. N. HORAN (*Annals of Internal Medicine*, November, 1939) report their clinical experience over a period of fifteen months with "Dilantin" in the treatment of 220 children and young adults suffering from epilepsy, most of whom had taken the drug for six months or longer. In this series the manifestation of the disease varied from the most fleeting *petit mal* to a *status epilepticus*, and the aetiological factor varied from a severe brain injury to the truly idiopathic type. The authors found the efficiency of "Dilantin" in the control of seizures to be greater than they expected. In 55% of their cases the seizures were entirely controlled, in another 20% the seizures were modified or partially controlled, and in 25% there was little or no improvement. They also found that other benefits apart from the control of convulsions were an improvement in memory and concentration, with an attendant sense of composure and sureness and emotional stability. The untoward effects noted were acute toxic conditions manifested as a skin rash or toxic damage of the nervous system, chronic irritative phenomena supervening after two or three months of continuous administration of the drug, evidenced by a sore mouth with hyperplasia of the gums, frequently associated, when present, with recurrent attacks of gastro-intestinal irritability. The most serious complication observed by the authors was hyperplasia of the gums, and it was thought to be inter-related and in some way connected with vitamin C deficiency. The gums gradually return entirely to normal within three months on discontinuance of the drug, although the diet

remains the same and no additional vitamin C is supplied. The authors conclude that "Dilantin" is the most powerful anticonvulsant thus far used by them, and that there is no cumulative effect, the drug being eliminated within two or three days.

Peptic Ulcer.

CLARENCE F. G. BROWN AND RALPH E. DOLKART (*The Journal of the American Medical Association*, July 22, 1939), in an evaluation of the therapy of peptic ulcer, briefly review and comment on the more commonly employed forms of ulcer management. From a study of 1,500 cases of recurrent gastro-duodenal ulcer the authors observe that the most important associated aetiological factors are functional nervousness, including fatigue and anxiety, then an acute infection, such as a cold, a sore throat, a sinus infection, an abscessed tooth or acute gastro-enteritis, then dietetic indiscretions. They state that the therapeutic problems of the acute stages of gastro-duodenal ulceration are not as difficult of solution as the chronic manifestations of the disease. Perforation and obstruction constitute a surgical problem, whereas massive hæmorrhage is treated variously by the Meulengracht method, the continuous aluminium hydroxide drip method, the method involving a restricted diet with repeated blood transfusions, and the starvation method, the final choice depending on the clinical condition of the patient. The authors consider that, despite the great number of reports in the literature on the treatment of chronic gastro-duodenal ulceration, there is little common ground upon which to base a comparative evaluation, and therefore they prefer to comment on the more commonly used methods of treatment and management. In regard to the Sippy management, serial examinations of the gastric contents of their patients enables the authors to state that fluctuations in gastric acidity bear no definite relationship to the onset of a recurrence of ulcer, that there is no correlation between the height of the free acid level and the degree of distress manifested by the patient, that complete neutralization of the gastric contents by alkaline powders is followed by a rise in the free acid to higher levels than those existent prior to their administration, that 40% of their patients had a relapse at about the eighth to the twelfth week with this form of treatment, possibly owing to iron or vitamin dietary deficiencies, that alkalosis is an ever-present potential source of danger, and that the method produces hypersecretion and gastric irritation as the price of hourly alleviation of distress. The authors found better progress in their patients from the administration of aluminium hydroxide and magnesium trisilicate preparations than from alkaline powders; but they do not attach any therapeutic value to the use of histidine hydrochloride by

injection, or to the use of vaccines and foreign proteins in the treatment of peptic ulcer. They are of opinion that the use of gastric mucin in four daily doses, totalling from four to eight grammes, together with frequent feedings and the frequent administration of antispasmodics, is more successful in reducing the incidence of ulcer recurrence than any other form of management, and that the vegetable mucilages are a useful adjunct in controlling symptoms of irritable bowel and constipation, the correlation of which with ulcer distress is not sufficiently emphasized. The authors state that the chief efforts in the medical management of chronic gastro-duodenal ulceration should be directed toward the protection or improvement of the involved area of mucosa, the stabilization of intermittent gastric peristalsis, and the reduction of pylorospasm, which cannot be achieved as a routine by any one form of therapy. Curtailment of emotional excitement and fatigue and avoidance of a frantic, anxious mode of living are as fundamental in any plan of ulcer therapy as are the medications prescribed, and the authors have adopted the principle of treating first the patient, secondly the bowel, and lastly the ulcer, by a scheme embracing tranquillity, rest, a diet proper in relation to frequency of feedings and vitamin content, the use of antispasmodics, and as adjuncts the use of powders, mucin, aluminium hydroxide and mucilages. The authors confess that gastro-duodenal ulceration must be considered as a chronic disease and that the incidence of recurrence will not be lowered until it is recognized as such, and patients are maintained under continuous observation on a rigid medical routine, just as are sufferers from pernicious anaemia and diabetes mellitus.

Stilbæstrol.

E. SHORR, F. H. ROBINSON AND G. PAPANICOLAON (*The Journal of the American Medical Association*, December 23, 1939) describe a clinical study of stilbæstrol. This substance was used by mouth in the treatment of menopausal symptoms, either natural or acquired. Doses ranged from one to four milligrammes per day; nausea, vomiting, anorexia, acute psychotic reactions and other toxic effects were reported. Symptoms were sometimes relieved, but the effects were obscured by the toxic reactions, which occurred even with small doses. Nausea and other symptoms followed intramuscular injection of two milligrammes, and it was concluded that the toxic effects were therefore due to a central effect on the nervous system.

Myasthenia Gravis.

H. R. VIETS AND R. S. SCHWAR (*The Journal of the American Medical Association*, August 12, 1939) discuss the diagnosis and treatment of myasthenia gravis. Seventy patients

were treated between 1905 and 1939 at the Massachusetts General Hospital. The age incidence is between ten and seventy years, the highest being in the second and fifth decades. The main symptoms were ptosis, general weakness, dysphagia and diplopia. The ergograph reveals that the muscles are exhausted by repeated pressure on a bulb. The most efficient test for the disease is the prostigmin test, which in dysphagia can be combined with fluoroscopic examination. Enlarged thymus was not observed in this series. Prostigmin bromide, 20 to 25 pills of 15 milligrammes each, have been given by mouth without ill effect. The dose varied between 7.5 milligrammes and 300 milligrammes per day, according to the individual and the type of disease. Oral treatment required about ten times as much prostigmin as was required for intramuscular treatment. Numerous preparations were used as adjuvants to prostigmin; of these, potassium chloride, 20 grammes per day, given in a 25% solution of ephedrine and guanidine, frequently assisted in allowing the dose of prostigmin to be lessened. Forty-four patients were treated orally with prostigmin for three to thirty-six months. Five died, seven had remissions and gave up using prostigmin; five more were able to reduce the dose.

Optimum Time for the Administration of Protamine Zinc Insulin.

M. F. MARK (*Archives of Internal Medicine*, November, 1939) states that patients receiving a single daily dose of protamine zinc insulin may have the injection at any time of the day that is most convenient. He has found that changes in the time of administration have no appreciable effect on the blood sugar level.

Erysipelas.

A. L. HOYNE, A. A. WOLF AND L. PRIM (*The Journal of the American Medical Association*, December 23, 1939) discuss the fatality rate in erysipelas, review the results of treatment in the past and describe the beneficial effects of treatment with sulphanilamide. Previously local application of magnesium sulphate, Röntgen and ultra-violet irradiation and erysipelas antitoxin had been the methods employed, the fatality rate varying between 7% and 23%. The authors treated 162 patients with sulphanilamide (doses not stated), with a fatality rate of 2.06%.

The Quantity of Blood Necessary to Produce Melena.

W. A. DANIEL AND S. EGAN (*The Journal of the American Medical Association*, December 16, 1939) induced ten medical students to drink blood from their own veins, and found that an amount of at least from 50 to 80 cubic centimetres of blood taken by mouth was required for the production of a glistening black ("tarry") stool.

Medical Societies.

MELBOURNE PÆDIATRIC SOCIETY.

A MEETING of the Melbourne Pædiatric Society was held on October 11, 1939, at the Children's Hospital, Carlton, Melbourne, Dr. D. O. Brown, the President, in the chair.

Pulmonary Atelectasis.

DR. D. M. EMBELTON showed a male baby, aged fifteen weeks, suffering from pulmonary atelectasis. He said that the baby was delivered on June 28, 1939, by easy forceps delivery after persistent occipito-posterior presentation. The birth weight was ten and a quarter pounds. The baby was of blue, livid colour, and it took twenty minutes to resuscitate him. He was found to be difficult to feed and lost weight; "Carbogen" was administered continuously from birth and seemed to be the only means of overcoming respiratory distress. From skiagrams prepared at Bethesda Hospital on July 10 it was seen that the right side of the diaphragm was much higher than normal, but the left side was in the usual position. A diagnosis of atelectasis of the right lung was made. The heart sounds were regarded as normal. Dr. Embelton said that the baby was admitted to the Children's Hospital on July 25, weighing nine and a quarter pounds, and on radiographic investigation the diaphragm appeared to be fixed at the level of the fourth right intercostal space. On August 8 crepitations were heard at the base of the right lung, associated with dullness and a slightly irregular temperature indicative of infection superimposed on atelectasis. Until August 15 the baby was still receiving "Carbogen" or oxygen continuously and was nursed in the prone position with the face to the left side. From August 15 the oxygen was withheld for five minutes every four hours and the length of time without oxygen was progressively increased to forty-five minutes every four hours by September 6; as the baby's condition was gradually improving, the oxygen was found to be unnecessary by September 22. The baby was able to take breast milk in the normal manner only from September 6; prior to that time the milk was expressed, and any shortage was complemented with "Lactone Syrup" milk. By September 22 the baby weighed ten pounds twelve ounces. A skiagram prepared about that time, after the introduction of iodized oil, showed that the level of the right hemi-diaphragm was lower than it had been originally. Dr. Embelton said that up to the time of the meeting the baby had had no signs of cyanosis and had gained in weight by one pound nine ounces. His comments on the case were that he had been impressed with the advisability of accepting the optimistic point of view, though the outlook for the baby had been bad at first. He knew that it was recognized that the prognosis was better for livid babies with atelectasis than it was for the pallid ones in which the condition was associated with prematurity. He was convinced, however, that the survival of the baby was attributable mainly to patient, persistent and faithful nursing.

DR. GUY SPRINGTHORPE said that the case was of great interest, and asked Dr. Embelton for more details concerning the oxygen therapy. He mentioned that the Mathieson Memorial Lecturer had disparaged the feasibility of delivery of oxygen by the intranasal route in amounts adequate for effective treatment.

DR. KEITH HALLAM said that he had been associated with the early skiagraphy, and in addition to the atelectasis and deficient air entry he had been very interested in the question of the paradoxical movement of the high right hemi-diaphragm.

DR. EMBELTON, in reply, said that there was no doubt that the oxygen therapy was efficient; the child had lived on it for nine weeks and had derived further benefit from it afterwards. The method adopted had been to use a reducing valve on the cylinder of oxygen attached to a

wash bottle; the oxygen was delivered through one catheter in the nose fixed to the cheek with strapping. The amount of oxygen given was judged by the rate of the bubbles through the bottle calculated to supply two litres per day. Dr. Embelton stated that the diagnosis had been made quite correctly and very creditably by Dr. Hallam on July 10; some doubt was thrown on it by the absence of paradoxical movement, which was probably attributable to adhesions. The absence of eventration or hernia of the diaphragm was finally established by the iodized oil investigation.

Cerebral Tumour Sans Tumour.

DR. MOSTYN L. POWELL showed a girl, aged thirteen years, who had been admitted to the Children's Hospital in June, 1939. For three months she had had headache and vomiting, which had been increasing in severity during the past two weeks; those symptoms were accompanied by diplopia, staggering gait and head noises intensified with the heart beats. Dr. Powell said that the girl was intelligent and an excellent witness. The relevant findings on examination were the following. Gross bilateral papilloedema was present, amounting on each side to four diopters. There was a macular fan in the right fundus; the visual acuity was measured as $\frac{1}{2}$ on the left side and $\frac{1}{4}$ on the right. Slight peripheral constriction with enlargement of the blind spot was present in each of the fields of vision. Left rectus palsy was responsible for the diplopia. Though the left eye was "out of action" for the test, the type of nystagmus was that associated with cerebellar lesions; when the patient looked to the right there was a rapid outswing with the coarse phase and a rotatory slow return, and when she looked to the left there was a rapid rotatory fine phase nystagmus. Dr. Powell added that the left arm tended to fall away slightly in the outstretched posture and that the finger-nose-finger test on that side was performed more poorly than was the corresponding test on the other side. The left biceps reflex and the right ankle jerk were somewhat depressed; the plantar reflex was flexor in type, and Dr. Powell had failed to elicit the grasp reflex. He had detected no abnormality on auscultation of the skull and in skiagrams of the skull, and the blood serum had failed to yield the Wassermann and hydatid reactions. The pressure of the cerebro-spinal fluid was 400 millimetres of water; no abnormality had been discovered on cytological and chemical investigation of the fluid.

DR. POWELL said that the rapidity of the history, the nystagmus of particular type and the gross fundal changes seemed to indicate the presence of a rapidly growing tumour in the posterior fossa. Dr. J. G. Whitaker had found no gross ventricular enlargement, so it was decided to explore the cerebellar lobes, although it was felt that the outlook was hopeless. On June 14 Dr. Whitaker had explored the cerebellum and found it to be under tremendous pressure, which made it very difficult for him to suture the dura. He had aspirated the lobes, but had not located the tumour. It was thought that it might be as deeply in as the mid-brain. An unfavourable prognosis was given and the patient had a very stormy time for two months. She was often semiconscious, incontinent, dysarthric, noisy, calling incessantly across the ward, laughing in a horrible mirthless fashion, until all wished for a speedy release. Unexpected improvement in the condition had occurred, however; she was still alive and her condition seemed to be improving; the exploratory flap had shown no sign of bulging; the papilloedema had gone, and, though the disks were a little pale, the visual acuity had not deteriorated; the headache and vomiting had ceased; the left arm still showed a tendency to fall away in the outstretched position; and there was a slight degree of hirsuties on the abdominal wall, limbs and face. Deep X ray therapy had been arranged, but as scarlatina had appeared in the ward she had not been sent to the Royal Melbourne Hospital for it. She had been given a course of treatment with "Campolon" and "Vibex" to palliate the traumatic dementia. At the time of the meeting the vision was normal and so were the fundi, with the exception of the pallor usually seen after

papilloedema. Except for a little petulance the child's mentality was quite satisfactory; and the hirsutism was disappearing. The last sign had raised the possibility of the presence of a Cushing's tumour, though it appeared to be explained satisfactorily by the post-operative alteration in the intracranial state. A symptom which still gave rise to anxiety was an occasional attack of nausea and "ten-minute" headache.

In commenting on the diagnosis, Dr. Powell observed that they were still awaiting the onslaught of further symptoms of encroachment on the intracranial contents by a tumour temporarily appeased by the subtentorial decompression; or, alternatively, it was possible that the patient had a basal arachnoiditis with adhesions blocking the foramina and temporary hydrocephalus, the hydrostatics of which had been altered by Nature or by surgical intervention.

Dr. J. G. WHITAKER congratulated Dr. Powell on the lucid and comprehensive way in which he had presented the case. He said that he had not intentionally applied the policy of appeasement at the time of operation. He pointed out that the surgery of cerebral tumours should not be regarded as important if the right perspective was adopted; the prize was not to be won in 95% of instances and the physical toll was seldom rewarded. At the Children's Hospital some years earlier Dr. Downes had improved the technique, and the introduction of basal in addition to local anaesthesia had been a great advantage. At the operation on the patient shown by Dr. Powell the intracranial pressure had been tremendous; Dr. Whitaker had had great difficulty in dividing the sinus in the mid-line, as the cerebellum was oozing out; and it had been a great task to suture the aponeurosis with black silk. He added that such operations were back-breaking, and that it was his custom just to employ through-and-through sutures of silkworm gut; but he experienced no difficulty from sepsis or fistula formation. He thought it likely that the patient's symptoms would recur. He mentioned that he had had a very similar case a year or two earlier in association with Dr. Grieve.

Dr. J. W. GRIEVE said that the patient to whom Dr. Whitaker had referred was older than the patient shown by Dr. Powell. The history had been similar, and they were confident that there was a cerebellar tumour; but Dr. Whitaker had been unable to find it. The patient had improved greatly after operation and had been kept under observation. The papilloedema did not subside completely, and after ten months alarming symptoms recurred. In the interim the patient had reached the age of fourteen years, so she was transferred to the Royal Melbourne Hospital, where Dr. Graeme Robertson had investigated her case. At the subsequent operation a large tumour was found, but the patient died.

Dr. Embelton said that he remembered another case some twelve years earlier. A girl had come under his care in the out-patient department, with vomiting as the presenting symptom. She had disappeared for a month and had returned to him unable to see; the delay in decompression had resulted in total blindness. After operation a large *hernia cerebri* had subsided gradually; a cerebral tumour associated with the ventricle had been removed, but for many years afterwards the appearance of the blind girl at his clinic had always made Dr. Embelton reproach himself because the decompression had been delayed. Since then he was alert to the necessity of speedy decompression to prevent blindness. The patient might have a long life to live, even if a cerebral tumour was present.

Dr. D. O. BROWN said that the surgeons were often criticized because the results of cerebral surgery were not good. It should be remembered that they were dealing with hopeless material as a rule; hydatid cysts or hemangiomas of the brain were relatively scarce, and most of the other conditions were unfavourable. Dr. Brown referred to the immense value of ventriculography, which in a little while could be expected to help in the accurate localization of tumours before death was impending. He expressed the opinion that the present patient's symptoms might be due to arachnoiditis.

Dr. Powell, in reply, said that it was to be hoped that the condition was inflammatory; if it was neoplastic their interest would be chiefly in the *post mortem* examination. If the improvement was arrested he intended to have the patient admitted to hospital for ventriculographic examination. He believed that the left arm might yet act as the indicator of the site of the tumour. It was unusual for a tumour producing such great intracranial pressure so rapidly to be followed by a complete negation of evidence of raised pressure and no bulging in the flap. The patient had a chance that the condition was an inflammatory one.

Cyst in the Floor of the Mouth.

Dr. W. R. FORSTER showed a girl, aged six years, who had come under his care originally in September, 1938, on account of the presence of a small bluish cyst in the floor of the mouth to the right of the frenum; he had regarded it as a ranula. As he took it to be a small localized condition, he had attempted to remove it from inside the mouth, protecting the submaxillary duct from damage by placing a probe in it. In the posterior portion of the mylohyoid muscle the wall of the cyst tore, creating a difficulty in its complete removal; so he had closed the wound around a gauze drain. After four months Dr. Forster was faced with the treatment of a recurrence of the trouble, affecting the neck as well as the floor of the mouth. He had tried to dissect it again, and found some cyst wall on the superficial surface of the mylohyoid muscle; it also appeared to go across to the opposite side and had no special relationship to the *foramen caecum* of the tongue. He said that he felt confident he had ablated it; but unfortunately it had returned again. He described the condition found at operation as an extensive thin-walled mucous cyst with glairy contents, which was not localized and was not associated with the submaxillary gland; it was entirely suprahyoid, had no communication through the tongue, and crossed the mid-line. He supposed that it was not really a thyroglossal cyst, but he was satisfied that it was not a cystic hygroma.

Dr. H. DOUGLAS STEPHENS said that the diagnosis was still in doubt. The original site was not convincingly thyroglossal. It was a pity that a histological examination had not been made; that might have helped. He went on to say that hygromatous cysts might be unilocular; they were not all multiloculated; the one under discussion seemed to be more hygromatous than thyroglossal. He suggested that Dr. Forster should reopen the site, remove as much of the cyst as possible and plug the wound instead of closing it, thus inviting a mild degree of sepsis, which would aid in ultimately obtaining firm healing.

Dr. W. KENT HUGHES said that he did not think the condition was a cystic hygroma; all he had seen had been multilocular and lower in the neck. It might be an advantage to inject an irritating fluid and pack the wound, letting it heal by granulating up from the bottom. He hoped that Dr. Forster would show the patient later at a meeting of the society.

Dr. J. G. WHITAKER said that, like ganglia, cysts of the floor of the mouth might recur. Any part of a thyroglossal cyst might wander and hypertrophy, and the condition might yet turn out to be a suprahyoid thyroglossal cyst.

Dr. REGINALD WEBSTER said that identification of those cysts was often difficult. The one under discussion might be multiloculated, with small honeycombing in the corners, or it might prove to be related to aberrant thyroid tissue, which was specially prone to mucoid and cystic changes.

Dr. D. O. BROWN said that the remnant was like a cystic hygroma and not like a thyroglossal cyst; but the original condition was probably altogether altered by the operations.

Dr. Forster, in reply, said that "ranula" was rather a vague term; but the original cyst was not a cystic hygroma. It had appeared beneath the mucous membrane in the floor of the mouth and not in the neck; and it was

absolutely uniloculated and not spongy. He thought he would try the effect of injections of quinine urethane, which would be safer than running the risks of secondary infection.

Carcinoma of the Pancreas.

Dr. D. O. BROWN showed a girl, aged eight and a half years, from whom he had removed at operation a tumour which had turned out to be carcinoma of the tail of the pancreas. He said that the child had been brought to the hospital on account of a cold in the head, but on routine examination the resident medical officer had discovered the presence of a large abdominal tumour. Apart from frequency and scalding on micturition of quite a minor nature, which might be related to it, the mass was symptomless. The child was healthy, well nourished and of good colour, but had some carious teeth. Towards the left side of the upper part of the abdomen there was a very large mass with a lobulated irregular surface; it was not tender and was at first thought to be either a kidney or the spleen. Dr. Brown remarked that renal malignant disease was rare in a child of eight years, the Grawitz tumour being found later in life and the Wilms tumour earlier. When examined the urine was normal chemically and microscopically, and no abnormality was found on cystoscopic and retrograde pyelographic examination. Dr. Brown described the operation which he had carried out on September 22 in the belief that the mass was the spleen. The child was slightly anæmic. In the excretion indigo-carmin test colour had appeared in urine from the right kidney in five minutes and in that from the left kidney in six minutes; and the technical broncho-pneumonia seen radioscopically had cleared up. Dr. Brown had made a large left-sided upper transverse incision and had come on a large tumour with the spleen above and outside it. He had then thought that it was renal in origin after all; he knew that Brachsch had reported that he had found a large Grawitz tumour associated with a normal pyelogram. After the peritoneum was incised Dr. Brown had mobilized the colon medially and the mass had come up readily, leaving a normal kidney lying behind it; it was attached to a yellowish structure, which appeared to be the pancreas. The tumour was attached to the tail, and he had cut the pancreas across between ligatures and without oversewing it. He had placed a drainage tube down retroperitoneally, which had been removed in three days. The wound had healed by first intention, and though the child suffered from shock on the first and second days after operation, convalescence was uneventful.

Dr. Brown said that the specimen had been examined very carefully by Dr. Reginald Webster, who, he understood, was prepared to call it carcinomatous. It was a malignant alveolar epithelial tumour of the pancreas. That condition was very rare at any age; he had been able to find only eight reported cases in children under the age of fourteen years, extending back to the first case in 1842. He thought that the present case was the only one in which complete operative removal had been made. He added that at operation the liver had seemed to be quite normal.

Dr. J. G. WHITAKER said that it was a good removal and a splendid result, and that Dr. Brown had given them an interesting presentation of the literature of the subject.

Dr. H. DOUGLAS STEPHENS also congratulated Dr. Brown and said that he had never before seen an example of carcinoma of the pancreas in a child. The only condition like it that he had encountered was teratomatous, and in spite of deep X ray therapy the patient had died within a year.

Dr. W. R. FORSTER said that he had come across two examples of carcinoma of the pancreas in patients aged respectively nineteen and twenty-three years. In each instance no light had been thrown on the diagnosis after full investigation; but no tumour had been palpable, and on exploratory operation on each occasion carcinoma of the pancreas was found.

Dr. Brown said that there was really no justification for congratulations, as the operation had been easy. He had advised that intensive deep X ray therapy should be given at the Royal Melbourne Hospital, and that vitamin B in large dosage should be given instead of, or as well as, "Campolon".

Pelvic Sarcoma in a Baby.

Dr. Brown also showed a male baby, aged eighteen months, from whom he had removed a pelvic sarcoma. The baby had come under notice on September 3 with abdominal pain of three days' duration, scanty urine, severe constipation and vomiting. The baby looked ill and a tumour was found in the lower portion of the abdomen; this was thought to be the bladder. After the bladder had been emptied of three ounces of normal urine the tumour remained. It was a firm, mobile, suprapubic mass, well defined and tender; it extended back into the pelvis and was firm and craggy and pear-shaped, the stalk going into the pelvis. Dr. Brown had thought at the time that it was probably an appendiceal mass, though that condition was not often seen in a baby. He had operated and found a fungating tumour coming through the fundus of the bladder and adherent to the bowel. It had caused sub-acute obstruction, and he had shelled some of it out for examination and had broken a few pieces off. The inside of the bladder was normal and the tumour appeared to arise from the bladder wall or the adjacent fibrous structures. Dr. Webster had described the biopsy material as very active spindle-celled fibro-sarcoma. He hoped that Dr. Webster would go into further details about that specimen and the other that Dr. Brown had presented that night. The patient was attending the Royal Melbourne Hospital daily for deep X ray therapy, and the mass had subsided to such an extent that Dr. Brown was considering the desirability of operating again to attempt excision; but he thought it would be advisable to continue the present treatment, which might conceivably prove curative without further operation.

Pathological Specimens.

Dr. REGINALD WEBSTER demonstrated from lantern slides the histological features of a malignant tumour of the pancreas, the clinical and operative details concerning which had already been discussed by Dr. D. O. Brown. Dr. Webster said that in his very complete presentation Dr. Brown had left him little to say; but he was confident that he could show that this tumour was a malignant epithelial neoplasm—in other words, a carcinoma.

In the first slide shown by Dr. Webster he demonstrated a microscopic field composed of alveoli lined by epithelial cells; the structure as a whole was a more or less faithful imitation of pancreatic tissue, but there was no division into lobules and no attempt at the formation of ducts. This section exhibited a decided hyperchromatism as compared with that prepared from a contiguous piece of normal pancreatic tissue; but Dr. Webster was prepared to concede that it might be regarded by some as similar to that of an adenoma.

No such view, however, could be taken of fields such as were illustrated in the second slide. In this low-power photomicrograph a solid and massive epithelial growth was shown, in which the regular acinous arrangement had been largely, but not completely, lost; histologically it was scarcely to be distinguished from the familiar medullary type of carcinoma of the breast.

The third slide Dr. Webster showed was of a high-power photomicrograph, in which an isolated field was seen; in this the cells were so anaplastic that it was difficult to say more of it than that it represented a highly malignant tumour. In malignant hepatoma of infancy Dr. Webster had established certain teratoid features, and it had occurred to him that such might be found in this malignant pancreatic tumour if a sufficient number of blocks of tissue could be prepared for histological examination.

In the case of the child presented by Dr. Brown as affected with a "pelvic sarcoma", the diagnosis was based

on a biopsy preparation. Dr. Webster indicated that he had placed this microscopic section on view. He could not regard it as other than a sarcoma. It was obviously a connective tissue growth, highly cellular, of homogeneous structure, with numerous vascular channels in intimate contact with the tumour cells. The component cells were predominantly spindle-shaped and an attempt at differentiation into fibrous tissue was to be seen in the presence of fasciculi of fibroblastic cells. The location of the tumour was quite indeterminate from its microscopic features. The clinical suggestion was that the growth was a tumour of the bladder. Sarcomata of the bladder were of very rare occurrence; but the microscopic features of this growth were compatible with an origin from the supporting tissue of the bladder. Dr. Webster had been unable to detect any suggestion of rhabdomyosarcoma.

Dr. Webster then discussed a specimen of hydronephrotic kidney with enormously dilated renal pelvis and ureter, which had been successfully removed by Dr. W. R. Forster from an infant, aged sixteen months. The baby had been subject to attacks of colic and screaming, of intermittent character, for a period of ten months, and the mother had noted that during such attacks the left side of the abdomen became prominent. Three days prior to the child's admission to hospital an attack of unusual severity had been accompanied by vomiting; the effort of vomiting occasioned a protrusion in the left renal region. Physical examination disclosed a large soft swelling, the exact limits of which could not be defined, filling the left loin. Radiographic examination by means of "Uroselectan" had revealed a large homogeneous shadow in the region of the left loin; the right kidney concentrated the dye well, the left apparently not at all. Dr. Forster had performed nephrectomy on October 5, 1939, thus providing the specimen under discussion. In Dr. Webster's opinion, the most probable explanation of the unilateral great dilatation of the ureter and renal pelvis and the extreme hydronephrosis was a congenital stricture of the ureter at the ureterovesical junction.

Another specimen shown by Dr. Webster was a dilated gall-bladder in which was seen a gall-stone impacted in the cystic duct. This specimen had been removed by Dr. Eric Price from a boy, aged eleven years.

Dr. Webster's later remarks were made with reference to two specimens of pleural fluid which he had received during the preceding week from children affected by pleurisy with effusion. In both cases the fluid was non-purulent and was inflammatory exudate rather than passive transudate; it exhibited a mononucleosis and yielded no pyogenic organisms on attempts at culture; in short, it was typical of the effusion in which the clinical presumption of tuberculosis was as strong as the laboratory proof was difficult.

Dr. Webster said that the presumed tuberculous pleural effusion had always occasioned him much difficulty. Since he had adopted routine cultural methods in the laboratory diagnosis of tuberculosis, he had cultivated *Bacillus tuberculosis* from ten specimens of pleural exudate; all of these, however, had shown some degree of turbidity, and some had represented frank tuberculous empyemata. Dr. Webster had not had a single successful attempt at cultivation of *Bacillus tuberculosis* from the clear non-purulent fluid, such as was withdrawn from patients in whom the unexpected occurrence of a pleural effusion raised justifiable alarm regarding the presence of pulmonary tuberculosis. His experience of guinea-pig inoculation in order to determine the presence of tubercle bacilli in suggestive pleural exudates had been very unsatisfactory, and this product of tuberculous activity presented its own notorious and exasperating difficulty in the fundamental particular of the demonstration therein of the tubercle bacillus.

Almost coincidentally with the receipt of the two specimens to which he had referred, Dr. Webster's attention had been arrested by an extremely interesting article by R. H. Stiehm in *The American Journal of the Medical Sciences* of April, 1939, at page 517; this indicated a much more profitable line of attack on the pleural effusion problem than any method of investigation hitherto

employed on the fluid itself. Stiehm, who was Director of the Department of Student Health in the University of Wisconsin, had adduced some illuminating findings based on the examination of gastric contents for tubercle bacilli. In 50 students, described as subjects of "minimal pulmonary tuberculosis", all of whom regarded themselves as well, and in all of whom such sputum as could be obtained showed no tubercle bacilli by microscopic examination, acid-fast bacilli were found in the gastric contents of nine (18%); and in no less than 36 of the 50 (72%) *Bacillus tuberculosis* was demonstrated in the gastric contents by guinea-pig inoculation. Dr. Webster said that it had interested him particularly to note that Stiehm had recorded another group of four students manifesting pleural effusion. The fluid aspirated from each individual in the group gave the usual negative findings; but guinea-pig inoculation with the product of gastric lavage revealed the presence of *Bacillus tuberculosis* in the gastric mucus of all four. The presence of free tubercle bacilli in the lungs in the subjects of pleural effusion was consistent with the frequent subsequent development of radiologically visible pulmonary tuberculosis.

In conclusion, Dr. Webster said that he proposed to enlist the cooperation of the resident medical staff and to approach the investigation of the two children who had furnished the most recent specimens of pleural fluid by subjecting the contents of the fasting stomach to the technique of culture, which he had already proved to be efficient in the recovery of tubercle bacilli from the gastric contents of four babies.

Dr. H. DOUGLAS STEPHENS, with reference to the specimen of unilateral kidney and megaloureter, said that he remembered a case of intestinal obstruction, occurring in a baby, which was thought to be due to intussusception; he had found a huge sausage-shaped swelling blocking the bowel and the pelvis. It was a condition similar to the one Dr. Webster had described, and there was obviously a stricture low down in the ureter. He had removed the kidney and ureter, and twelve months later the child was well. Dr. Stephens also remarked that the gall-bladder packed with faceted gall-stones was unique at the hospital. He remembered finding a gall-bladder full of faceted stones in a boy, aged eleven years; the tumour had felt like a cow's horn in the abdomen.

Death of Dr. Stewart Ferguson.

Dr. D. O. BROWN, from the chair, spoke feelingly of the loss the society had sustained by the death of Dr. Stewart Ferguson, who had been on the resident and honorary medical staffs of the Children's Hospital since 1904. Dr. Brown said that Dr. Ferguson would be remembered as a lovable, helpful and kindly colleague, and they deeply regretted his passing. He announced that an expression of sympathy and regret had been sent on behalf of the members to Mrs. Ferguson.

Naval, Military and Air Force.

APPOINTMENTS.

THE undermentioned appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Number 58, of March 28, 1940.

CITIZEN NAVAL FORCES OF THE COMMONWEALTH.

Royal Australian Naval Volunteer Reserve.

Confirmation in Rank.—Surgeon Lieutenant (on probation) William Walter Seed is confirmed in the rank of Surgeon Lieutenant, with seniority in rank of 16th September, 1938.

THE SECOND AUSTRALIAN IMPERIAL FORCE.

Australian Army Medical Corps: Second Reinforcements.

To be Captains—Captains C. D. Donald and J. F. Connell, Australian Army Medical Corps, 3rd Military District, with regimental seniority next after Captains A. L. Johnston and E. J. C. Molesworth, respectively, 12th March, 1940.

AUSTRALIAN MILITARY FORCES.

NORTHERN COMMAND.

First Military District.

Australian Army Medical Corps.

Major M. L. D. McKeon is appointed from the Reserve of Officers (A.A.M.C.), 12th October, 1939.

To be Major (temporarily)—Captain D. A. Cameron, 26th February, 1940. The following officers are brought on the authorized establishment, 24th February, 1940: Captains D. V. Shell and R. A. Maxwell, and Captains (provisionally) A. W. Robertson, A. F. Quayle, A. K. Green, J. W. Ralston, R. J. Hoy, B. T. Mayes, J. A. Hill, C. F. Hecker, A. Inglis, A. D. A. Mayes and R. R. Winton. Captain D. B. Walker is appointed from the Reserve of Officers (A.A.M.C.), 27th February, 1940; Honorary Captains C. A. Thelander, C. M. McCarthy, M. J. McKillop, E. R. Row and K. C. M. Madden are appointed from the Reserve of Officers (A.A.M.C.), and to be Captains (provisionally), supernumerary to establishment pending absorption, 27th February, 1940.

Australian Army Medical Corps Reserve.

To be Captains (temporarily)—Lieutenants T. T. Ferguson and J. E. B. MacLean, 13th February, 1940. To be Honorary Captains—Honorary Lieutenants W. F. Coe, C. G. Frew, E. W. Haenke, A. H. Sagar, H. W. Shera, R. S. Pennycuik, W. E. Earnshaw, C. F. Hughes, A. M. Smith, G. D. Johnston, A. J. Hancock, J. G. Brookes, H. B. Hase, A. G. McKie, H. T. Culverhouse, G. V. P. Beresford, G. F. Scott and J. J. Lander, 13th February, 1940.

SOUTHERN COMMAND.

Third Military District.

Australian Army Medical Corps.

To be Captains (provisionally)—Stewart Irvine Weir, William Eric Archer Hughes-Jones and Geoffrey Kaye, 12th October, 1939.

Fourth Military District.

Australian Army Medical Corps.

Major G. H. B. Black is appointed to command the 3rd Field Ambulance, and is granted the rank of temporary Lieutenant-Colonel, 9th February, 1940, vice Lieutenant-Colonel (temporary Colonel) F. H. Beare, E.D., who relinquished the command on 27th November, 1939. The resignation of Captain (provisionally) J. A. Game of his commission is accepted.

Australian Army Medical Corps Reserve.

To be Honorary Captains—Ivan Sandilands Magarey, 19th February, 1940; Honorary Lieutenants P. R. Newling, S. E. Barratt, R. N. Campbell, T. D. Campbell, N. G. McDermott, K. W. R. Quin, P. H. King, W. W. Evans, F. J. Wright, R. H. G. Taylor, A. E. Bolt, D. W. M. Sands, A. R. Wotton, L. W. Jungfer, H. F. Sudholz, L. C. Gabell, F. C. Fraser, R. D. Hughes, R. G. Weaver-Gibson, A. K. Trott and D. W. Trott, 21st February, 1940. The resignation of Honorary Captain S. B. Forgan of his commission is accepted.

Sixth Military District.

Australian Army Medical Corps Reserve.

To be Honorary Captains—David Ancrum Alexander, 12th February, 1940; Honorary Lieutenants H. W. Bennett, O. Blaubaum, B. G. Gray, A. A. Hean, H. A. Kershaw, H. Lucadou-Wells, A. N. Poulton, B. Rodway, S. T. Simpson and J. W. Young, 20th February, 1940.

WESTERN COMMAND.

Fifth Military District.

Australian Army Medical Corps Reserve.

To be Honorary Captains—Honorary Lieutenants W. E. Bennett, G. D. Henderson, S. J. M. Simpson, J. L. Pritchard, T. G. W. Flintoff, K. J. T. James, L. O. Liddell, K. B. Kelly, L. F. G. Dodd, N. Crossing, F. K. D. Gargett, C. F. Scott, T. L. Williams, R. E. Clarke, N. E. Bannan, 22nd February, 1940.

Obituary.

FRANCIS HENRY VIVIAN VOSS.

DR. FRANCIS HENRY VIVIAN VOSS, whose death has already been recorded in these pages, was born on August 9, 1860, at Hackney, London. He was the son of Robert Voss, a solicitor. The Voss family lived for many years in south and west Wales, mainly Glamorganshire; records show them there in the fourteenth century.

Voss was at first apprenticed to the family doctor. He then passed his Cambridge entrance examination and entered London Hospital, where he was taught by Hughlings Jackson, for whom he later acted as house physician, by Jonathan Hutchinson, by John Couper and by other famous men. On August 11, 1881, two days after his twenty-first birthday, he received permission to practise as a licentiate of the Society of Apothecaries. On July 31, 1882, he was admitted as a Member of the Royal College of Surgeons, and on June 11, 1885, two months before his twenty-fifth birthday, he was admitted as a Fellow of the College. In 1884 he served as resident medical officer at the Whitechapel Infirmary.

In 1885 he came out to Australia to do a year's *locum tenens* work at Bowen, Queensland. He travelled in the R.M.S. *Quetta*, which left London on September 22 and anchored in Moreton Bay on November 18. After a year at Bowen he went to Rockhampton as *locum tenens* for Dr. Thurston, and almost immediately purchased the practice. Early in 1888 he married, and later in the same year was appointed Government Medical Officer, an appointment which he held until 1927, when he was compelled to resign, as he desired to go to England for a six months' trip.

When he first went to Rockhampton the Women's Hospital was only a ward attached to the Benevolent Association; but at his instigation the ward was separated from the Benevolent Association and handed over to a committee of ladies, under whose care it grew into a fine hospital. In 1900 he built a private hospital, "Hillcrest", on the range overlooking the town. By the later addition of several pavilions it grew into a 65-bed hospital.

In 1927 Voss was admitted as a Foundation Fellow of the Royal Australasian College of Surgeons. In 1929 he gave up his practice and came down to Sydney, where he spent his remaining years. He was a very keen Mason, a past-master of Lodge Rockhampton, and a member of Lodge Athenæum in Sydney.

Dr. C. N. Matheson writes:

Dr. Voss was sixty years old when I first became associated with him, but he was still the forceful and deeply respected personality in the central Queensland district that he had been for many years before I knew him.

His whole character was one of strength, and he applied it diligently to the furtherance of his profession and the interests of his patients. He did not spare himself in any way and was one of the best known men in this large district. There were few indeed who did not hold him in the highest regard.

The facilities of modern times and the comparative ease of travel were lacking when he started practice, but this only served to bring out prominently his outstanding

characteristics of indomitable courage and tireless energy. Among the many examples of this can be recalled an incident that occurred soon after his arrival from England. Called to visit a patient far in the bush, although not a very expert horseman, he started off on horseback, but unfortunately was thrown and suffered a fracture of his fibula. Nothing daunted, he remounted and continued his journey and attended to his patient.

During his training at London Hospital he acquired a keen interest in surgery, which never flagged. He was an ardent disciple of Lister and lost no time in applying his knowledge to the welfare of his patients.

The Rockhampton Women's Hospital, which he developed from a maternity ward earlier organized by him, was a real factor in his own life and the life of the community.

Such were the results of his efforts that at the time when it was absorbed by the local Hospital Board it was a training school in midwifery, with over 200 obstetric cases yearly, as well as containing medical and surgical wards. At the same time he started his own private hospital, and between the two developed a large surgical practice. Although perhaps his best work was done in gynaecological surgery, his interests were not confined to that; he operated successfully in all the areas of general surgery. Early in the century, in connexion with the Women's Hospital, he started a convalescent home at the seaside.

Apart altogether from his surgical knowledge and skill, Dr. Voss will be most and longest remembered as the best and truest type of family doctor. His bright and ever-thoughtful, kind and keen personality endeared him to all of his patients and inspired their confidence. The regard in which he was held was not merely the result of a kind and ready wit, but was won by his understanding, his constant and never-failing devotion to duty and the practice of modern medicine in all its phases, but, last and not least, by his interest in his patients as men and women. He was readily able to adapt himself to all types and classes of people, and felt innate pride in being able to help them all.

With advancing years he still retained his desire to search for knowledge. When radium was first coming into use prominently he was just as keen to become proficient in its use, as he was in the latter part of the last century, when pathology was becoming better known, to establish his own pathological laboratory.

Owing perhaps to a capacity for doing with remarkably little sleep, his reading, not only in medicine but in general literature, was extensive. He always seemed to have the apt quotation for any subject, and his knowledge of the Bible seemed inexhaustible, and this book was the origin of many of his quotations. One of the day's pleasures was to give anaesthetics for him, for there would surely come at the most unexpected moments extracts from his latest find in the book world, with anecdotes and stories in which his sense of humour delighted. He loved music and was very interested in education. For many years he was Chairman of the Girls' Grammar School Trust.

In all he was a man, and his wide knowledge, his vast experience of life and strength of character all combined

to make him a moral factor for good in the life of the community. Sir Clifford Allbutt once said: "Some cases a doctor cures, some cases he alleviates, but he should always comfort"; and no doctor ever comforted and helped his patients more than did Francis Henry Vivian Voss.

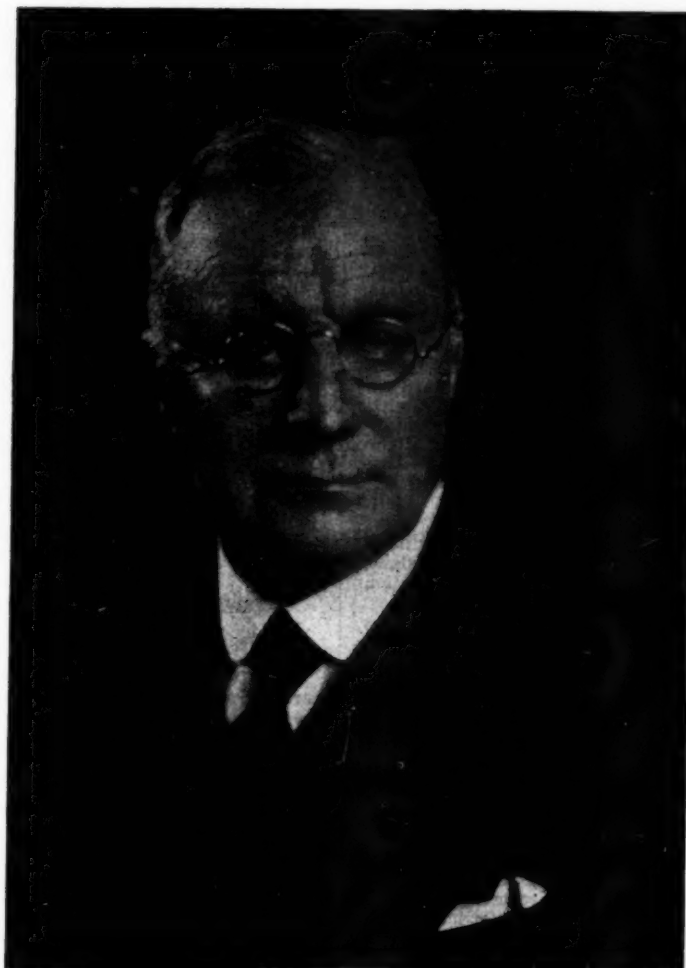
One of Francis Henry Vivian Voss's contemporaries, who wishes to remain anonymous, writes:

No doubt to the capital cities of Great Britain and North America there naturally gravitate more rare and intricate diseases than could proportionately be found in smaller communities, and with them are soon gathered a little band of men, pre-eminently fitted by study and opportunity to deal with such cases in the best interest of the patients and for the furtherance of medical science. The same condition of practice, although naturally in less degree, obtains in our Commonwealth of Australia.

Let us grant, then, that more special talent and a larger special field of work exist in the greater

centres of population and medical teaching than in the smaller places. But that does not necessarily connote that just as good, or sometimes even all-round better, talent and treatment may not be found far afield from the main centres of professional activity.

When I call to memory "the bright particular stars" I have found practising "in the provinces", and compared their work with that of their more famous colleagues in London, I confess I have sometimes felt that the unknown stranger from afar within their gates, whether a patient or a visiting medical man in search of truth, got at times a better deal from the man who practised



quite a long way from the charmed neighbourhood of Harley and Wimpole Streets; and I find that this impression was not seldom shared by many other Australian medical men of all branches of practice. But this view is not to be taken as a sweeping statement, for there are many stars of the first magnitude in the firmament of medicine in London, which shine with as good, honest and kindly a light as illuminates little Edinburgh, or Leeds, Birmingham, Bristol, or any other provincial city. If, then, this state often exists overseas, it is also not unknown in Australia. The conditions of practice in our uncrowded country, led, or did lead, fairly often to the development here and there of a very fine type of practitioner—wise, capable and self-reliant—armed at all points with the learning of his times, which he took with him to his field of work, and which, to his eternal credit, he allowed not to rust, but rather brightened it daily, by reading, practice, common sense and a righteous passion to keep himself abreast of the current advances in his art and craft. Such a practitioner was the truly safe man to whom the patient could entrust his life with an easy confidence. Thus was fashioned the man who became the best exemplar of general medical practice at its zenith—the practitioner who in good truth and deed was a "real doctor". I copy here the expression of a former well-known physician of Sydney, now no longer seeing patients, who always used these two words, but spoke them with a convincing Doric intensity; I knew just what he meant, for I shared his interpretation of the term.

The best examples, I fear, are sadly less in these days than in the past—men now maroon themselves too early in the closed compartments of specialism, where their light is sometimes a little dim and can rarely shine with the mellow diffused radiance of such doctors whom I remember still with respect and affection. Even as I write I call to memory several such—Joseph Verco of Adelaide, Sydney Jones and Murray Oram of Sydney, Kennedy of Hay, and Michod of Longreach, to name only five who are no longer with us. But I doubt if, living or dead, in great cities or smaller towns, I can readily recall more than a dozen such masters in medicine; but in that little gallery of excellence of "real doctors" I certainly place Vivian Voss, of Rockhampton, as I always did during his life.

No doubt others who knew him better than I will tell more fully of his fine professional career in Queensland; but I may allow myself to chronicle a few of the salient points in his admirable record of work.

Voss was born about seventy-nine years ago at Hackney, in London, of ancient Welsh stock. He received his medical education at the London Hospital and took the Fellowship of the English College of Surgeons and also that slightly quaint old permission to practise, the L.S.A., of which he was very proud. In latter years he naturally became a Foundation Fellow of the Royal Australasian College.

He early determined to come to Australia and started first at Bowen in 1885, and actually came out in the ill-fated *Quetta*; but in the following year he succeeded to the practice of Dr. Thurston at Rockhampton, a practitioner of no small ability and of a curiously intriguing personality, as the writer of this appreciation well remembers. Rockhampton, as it seemed to me, was climatically anything but a health resort; but it was nevertheless just the place in which a young keen man of marked intellectual ability, and with a flair and capacity for safe surgery would find a large field for the exercise of his talents. Remembering the Rockhampton of these long-past years, for I also sampled it for a little while, with its dusty streets and breathless nights, in a certain "long unlovely sheet" by the Fitzroy River, I can realize what a place it was in which to "get on", and where a "real doctor", so wise, honest and trustworthy as young Voss, was a veritable godsend to a vast district stretching five hundred miles inland to the township of Longreach—and so there he found his life's work. Far and near, on horse or in buggy, for many a day before cars and aeroplanes altered things in these ultimate outposts of pastoral settlement, he went about his business, doing all things well, but especially finding full scope for

his own natural inclinations in safe surgery. I suppose till Michod settled in Longreach, Voss must have had a truly huge strip of central Queensland as his field of work.

It was indeed a full and strenuous life; yet it was made to find time for professional study and the broadening use of good books—always was Voss a man who loved his library. He was what I like to call religious-minded, although he did not crystallize his beliefs within the fold of any church. He had a really wide knowledge of the Bible and could quote it aptly and quaintly, and in that he reminded me of my old master, James Spence; and I liked Voss for it. Of his five children, four took to medicine, two boys and two girls. Surely a remarkable record, which must have been rarely equalled or surpassed.

As the long years of responsible strenuous work slipped away a time came when a trying climate and a natural desire for a period of rest and contemplation led him in 1929 to bring his labours to an end—"by crisis", as I would say, for he simply just left his practice in that hot river town in Queensland, happily with a son to carry on the tradition of honest efficient work; and so he came south to Sydney and lived here a more placid life. I do not think these later days of desuetude hung heavily upon him, for he had various resources to fall back upon, books to occupy his mind; he played "games with balls" and he taught himself to weave admirably. I think he made a better job of hours of idleness and retirement than some people do whose professional activities have petered out "by lysis". And so the inevitable end came upon him insensibly and was accepted with the same quiet fortitude which he had always shown throughout his active and useful life. Surely, then, "when the leaves of the Judgement Book unfold" he will be of those who are dismissed with honour.

HENRY GEORGE LEAHY.

WE regret to announce the death of Dr. Henry George Leahy, which occurred on April 1, 1940, at Temora, New South Wales.

Correspondence.

RADIUM TREATMENT OF CANCER OF THE BREAST.

SIR: In the journal for March 2, 1940, there was a current comment on the radium treatment of cancer of the breast. It referred particularly to the Hunterian Lecture of Paterson Ross in *The British Journal of Surgery*, October, 1939.

There are several points which seem to me to merit some discussion; however, for reasons of space I would draw attention only to the description of the method of implantation of radium needles. This did not seem to me sufficiently detailed and the usual modern way of recording doses has not been attempted.

In radium therapy two fundamental principles must be observed. In any implantation every effort must be made to define the boundaries of the volume of tissue to be irradiated and the distribution of the radiation should be as homogeneous as possible.

Very careful systems for the arrangement of sources in most common types of geometrical figures have been worked out, so that the minimum dosage delivered at any point in the volume can be specified fairly closely in radium r units. In the case of the breast and the axilla some experimental work we have done suggests that this ideal system can be followed with a fair degree of accuracy. However, it is probable that this could not be obtained using similar needles to those described by Paterson Ross. The use of long needles up to ten centimetres in length is essential in many cases, and a considerable variety of both lengths and linear strengths is required for each individual patient. In the case of most

hospitals this necessitates the use of radon instead of radium.

It is impossible to estimate the dosage level reached in the patients described in this article, but it appears likely that it was, generally speaking, low. In fact I would suggest that the minimum dosage given would be well below 5,000 r.

This guess is made for two reasons: First, it was stated that in 37 out of 50 cases in the first series a lump was still palpable in the breast three months after irradiation. In a series of 19 cases treated here with long radon needles, all of whom were selected as inoperable, only four showed a residual mass at this period. Second, it is stated that the breast and pectoral fascia were removed and the fat and glands cleared out of the axilla as completely as the presence of the muscles permitted, in some cases at three and in others at six months after irradiation. In the case of patients treated here with the higher minimum dosage level of approximately 7,000 r in seven days, such a dissection would be impossible.

The amount of fibrosis throughout the block of tissues irradiated in our cases has been marked. One case came to necropsy seventeen months after the radical irradiation. Throughout the breast itself, the soft tissues of the upper anterior thoracic wall and the axilla there was a firm fibrosis. This case made it quite clear that the use of this dosage level could not be considered a preliminary step to any surgical dissection.

I would plead that in any critical discussion of the results of radium implantation the all-important description of the shape and volume of the tissues irradiated, together with an exact specification of the placing of sources in the volume and a statement of the minimum dosage level reached should be regarded as essential.

Your commentator went on to say that we have insufficient information about the efficacy of radical surgery combined with irradiation by X rays. This may be so as far as Australian statistics are concerned, but I would suggest that he should study the figures published by Pfahler and his associates, for example, in the Caldwell Lecture for 1937 (*American Journal of Roentgenology*, Volume XXXIX, 1938, page 2).

Yours, etc.,

St. Margaret's Hospital,
Launceston,
Tasmania.
March 28, 1940.

W. P. HOLMAN.

THE CENTRAL (NATIVE) MEDICAL SCHOOL, SUVA.

SIR: The most recent report from Suva discloses the fact that there are now 104 native medical practitioners who have been placed in the South Pacific. The course is of four years' duration and there is an excellent pathological department.

The practitioners are distributed as follows:

Fiji	68
Gilbert and Ellice Islands	10
British Solomon Islands	7
New Hebrides	2
Tonga	9
Indian practitioners—variously distributed ..	8

Yours, etc.,

103-105, Collins Street,
Melbourne,
April 3, 1940.

JAMES W. BARRETT.

Post-Graduate Work.

WEEK-END COURSE IN ELECTROCARDIOGRAPHY AT SYDNEY.

The New South Wales Post-Graduate Committee in Medicine will hold a course of instruction in electrocardiography at the Prince Henry Hospital, Little Bay,

during the week-end June 22 and 23, 1940. The course will be elementary and is particularly designed for those in general practice. It will not be held unless eight applications are received.

The programme is as follows.

Saturday, June 22.

- 2 p.m.—"General Principles": (a) "The Modern Cardiograph", (b) "The Normal Cardiogram", Dr. A. J. Hood Stobo.
3 p.m.—"The Arrhythmias", Part I, Dr. J. Halliday.
4.15 p.m.—"The Arrhythmias", Part II, Dr. J. Halliday.

Sunday, June 23.

- 10 a.m.—"The Cardiogram in Coronary Occlusion", Dr. R. Jeremy.
11 a.m.—"The Cardiogram in Myocardial Disease", the Director of the Post-Graduate Medical Unit, Dr. S. A. Smith.

The fee for the course will be one guinea. Applications for registration, accompanied by a remittance for the amount of the fee, must be made to the Secretary, New South Wales Post-Graduate Committee in Medicine, the Prince Henry Hospital, Little Bay.

Proceedings of the Australian Medical Boards.

NEW SOUTH WALES.

THE undermentioned have been registered, pursuant to the provisions of the *Medical Practitioners Act, 1938-1939*, of New South Wales, as duly qualified medical practitioners:

- Basser, Adrian Gustave Nelson, M.B., B.S., 1939 (Univ. Sydney), 3, Manning Street, Potts Point.
Carter, John Joseph, L.L.M., 1937, R.C.P. (Ireland), R.C.S. (Ireland), D.R.C.O.G., 1937, "Claghmore", High Street, West Maitland.
Cropp, David Leonidas, M.B., Ch.B., 1938 (Univ. New Zealand), "Larbert", Crick Avenue, King's Cross.
Mulvaney, Barry Joseph, M.B., B.S., 1939 (Univ. Melbourne), "Windsor", Bell Street, Vaucluse.
Bondy, Gustav, M.D., 1894 (Univ. Vienna), 18, Beaconsfield Road, Mosman.
Feher, Stephen, M.D., 1924 (Univ. Frankfurt), M.D., 1927 (Univ. Graz), 672, New South Head Road, Rose Bay.
Kantor, Richard, M.D., 1910 (Univ. Vienna), 49, Bayswater Road, Darlinghurst.
Goldschlag, Frederick, M.D., 1919 (Univ. Vienna), M.D., 1923 (Univ. Lwow), 453, St. Kilda Road, Melbourne.

The following additional qualification has been registered:

- Ross, Garnet Andrew, M.B., B.S., 1927 (Univ. Sydney), D.P.M., 1932 (Univ. Sydney).

Books Received.

VIRUS AND RICKETTSIAL DISEASES, WITH ESPECIAL CONSIDERATION OF THEIR PUBLIC HEALTH SIGNIFICANCE. A SYMPOSIUM HELD AT THE HARVARD SCHOOL OF PUBLIC HEALTH, JUNE 12-JUNE 17, 1939. Cambridge (Massachusetts): Harvard University Press. Medium 8vo, pp. 916, with illustrations. Price: \$6.50 net.

AN INDEX OF TREATMENT, by various writers, edited by R. Hutchinson, Bt., M.D., LL.D., F.R.C.P., assisted by R. Hilton, M.A., M.D., F.R.C.P.; Twelfth Edition, revised; 1940. Bristol: John Wright and Sons Limited. Super royal 8vo, pp. 1011, with illustrations. Price: 42s. net.

Nominations and Elections.

THE undermentioned has applied for election as a member of the New South Wales Branch of the British Medical Association:

de Burgh, Patrick Macartney, M.B., B.S., 1939 (Univ. Sydney), Sydney Hospital, Sydney.

Diary for the Month.

APR. 16.—New South Wales Branch, B.M.A.: Ethics Committee.
 APR. 17.—Western Australian Branch, B.M.A.: Branch.
 APR. 18.—New South Wales Branch, B.M.A.: Clinical Meeting.
 APR. 22.—New South Wales Branch, B.M.A.: Medical Politics Committee.
 APR. 24.—New South Wales Branch, B.M.A.: Branch.
 APR. 24.—Victorian Branch, B.M.A.: Council.
 APR. 26.—Queensland Branch, B.M.A.: Council.

Medical Appointments.

Dr. H. B. Bruce has been appointed Government Medical Officer at Holbrook, New South Wales.

Dr. M. Hurst has been appointed Government Medical Officer at Branxton, New South Wales.

Dr. B. T. Lovell has been appointed Government Medical Officer at Werris Creek, New South Wales.

Dr. A. E. Coates has been appointed a Member of the Dental Board of Victoria, pursuant to the provisions of the *Medical Act*, 1928, of Victoria.

Dr. L. G. Tassie has been appointed a Member of the Medical Board at Port Pirie, in accordance with the provisions of the *Workmen's Compensation Act*, 1932-1938, of South Australia.

Dr. W. de Witt Henty has been appointed Superintendent of the Mental Hospitals at Mont Park and Janefield, and the Repatriation Mental Hospital at Bundoora, Victoria, according to the provisions of the *Lunacy Acts* of Victoria.

Dr. J. McManamey has been appointed Medical Superintendent, Office of the Director-General of Public Health of New South Wales.

The following honorary appointments have been made at the Royal Adelaide Hospital, Adelaide, South Australia: Consulting Gynaecologist, Dr. R. E. Magarey; Gynaecologist, Dr. B. H. Swift; Assistant Gynaecologist, Dr. H. M. Fisher; Temporary Assistant Gynaecologist, Dr. R. L. Verco; Clinical Assistant to the Gynaecological Section, Dr. B. E. Wurm; Temporary Physician, Dr. E. McLaughlin; Temporary Assistant Physicians, Dr. C. B. Sangster, Dr. J. L. Hayward, Dr. J. G. Sleeman; Clinical Assistant to the Medical Section, Dr. J. M. Bonnin; Assistant Radium Therapist, Dr. J. C. Mayo; Clinical Assistant to the Radium Section, Dr. B. S. Hanson.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser", pages xviii-xx.

RICHMOND DISTRICT HOSPITAL, RICHMOND, QUEENSLAND: Medical Officer.

SYDNEY HOSPITAL, SYDNEY, NEW SOUTH WALES: Surgical Registrar.

STATE GOVERNMENT OF WESTERN AUSTRALIA: Inspector-General of the Insane.

THE ROYAL NORTH SHORE HOSPITAL OF SYDNEY, NEW SOUTH WALES: Honorary Officers.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCHES.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 135, Macquarie Street, Sydney.	Australian Natives' Association. Ashfield and District United Friendly Societies' Dispensary. Balmmain United Friendly Societies' Dispensary. Leichhardt and Petersham United Friendly Societies' Dispensary. Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney. North Sydney Friendly Societies' Dispensary Limited. People's Prudential Assurance Company Limited. Phoenix Mutual Provident Society.
	Associated Medical Services Limited. All Institutes or Medical Dispensaries. Australian Prudential Association, Proprietary, Limited. Federated Mutual Medical Benefit Society. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
QUEENSLAND: Honorary Secretary, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17.	Brisbane Associate Friendly Societies' Medical Institute. Proserpine District Hospital. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.
SOUTH AUSTRALIAN: Secretary, 175, North Terrace, Adelaide.	All Lodge appointments in South Australia. All Contract Practice Appointments in South Australia.
WESTERN AUSTRALIAN: Honorary Secretary, 205, Saint George's Terrace, Perth.	Wiluna Hospital. All Contract Practice Appointments in Western Australia.

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